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#### **Classical Sculpture**

Greek Sculpting by Rafael Ghencev

#### Luis Antonio, Weiye Yin & more!

Gallery - 10 of the best Images from around the world!

#### "Abraham Lincoln"

Project Overview by Stanko Stupar

#### **Robin Benes**

Checkout our interview with this great 3D Artist

## MODELING HUMAN ANATONY

Two fantastic new tutorial series - Classical Sculpture by Rafael Ghencev and our new multi-series, Modeling Features of the Human Anatomy.



#### NEW!!! Modeling Features of the Human Anatomy

**Jose Lazaro, Gavin Goulden, Lino Masciulli** & **Anto Juricic** bring us chapter 1 in our new Anatomy series. This month the focus is on ears.



#### **Photoshop Post Effects**

**Richard Tilbury** concludes our **Photoshop Post Effects** series by showing us how to transform a regular scene into an underwater environment.

#### **Unreal Games Engine Tutorial**

This month **Andrew Finch** will be talking you through the final stages of the layout process of our **Italian Courtyard**.



**3dcreative** Contents



#### EDITORIAL

Welcome to the 68th issue of 3DCreative. I hope you are all feeling creative and ready to get stuck into some great new tutorials. In this issue we kick off two great new series including a new multisoftware type tutorial that could prove to be very handy for all of you character artists out there.

But we will start this month by taking a brief look at this month's interview. Robin Benes has been around for a few years now producing great work for numerous games companies. We recently had a reminder of how good Robin is when he posted his amazing image 'The Goblin Pirate' in our forums and everyone's jaw hit the floor. In this issue we find out what he is doing, what he has been doing and what he would like to do.

This month's Making Of is of the great caricature of Abraham Lincoln that featured in our galleries a few months ago. Stanko Stupar tells us how he created his amazing caricature using ZBrush. There are some great little tips in there, including help with doing hair and skin which is well worth taking a look at.

We have stepped back in time to look at Abraham Lincoln, but now we are going to go even further back to the time of the ancient Greeks. Classical art influences modern art all of the time, in fact the style and techniques of the pioneering artists have stayed with us and played a part in the design and set up of many of our digital art packages. In our new series ZBrush Classical sculpture Rafael Ghencev shows us how to sculpt in a classical style. As you can tell from the cover he has done a great job!

To continue on the theme of anatomy we can move on to talk about our new huge series about Modeling Features of the Human Anatomy. In this series our artists will be showing us in simple steps how to model the features of human anatomy that often prove to be a stumbling stone for many artists. This is a really handy set of tutorials will be dealt with by Jose Lazaro in 3ds Max, Gavin Goulden in Maya, Lino Masciulli in Cinema 4D and Anto Juricic in Modo. We kick the series of by looking at modeling the ear.

Our Photoshop Effects series ends this month, and in this issue Richard Tilbury will be showing us how to sink your scene! Rich takes a normal looking image of a pub, and puts it into the depths of the ocean with a few clever tricks in Photoshop. This is definitely worth a read!



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CLASSICAL SCULPTURE
Character Creation Chapter 1: Greek Sculpting



"Abraham Lincoln"



Project Overview by Stanko Stupar

"GOLDIE"
Digital Art Masters: Volume 5 - Free Chapter



MODELING HUMAN ANATOMY Chapter 1: Ears



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LEAD DESIGNER	Dan Nash	Richard Tilbury	MARKETING
Chris Perrins		Chris Perrins	Amy Bayliss

#### FREE STUFF!

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Andy Finch continues his games level this month by continuing to build on his scene. This has been a really great series. If any of you have been following it and making your own level I would love to see it.

Wow! What a great magazine! This is topped off with great gallery images by Weiye Yin, David Lesperance, Aleksandr Kuskov and Luis Antonio. I hope you enjoy reading it as much as we enjoy making it.



#### SETTING UP YOUR PDF READER

For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: DOWNLOAD!

To view the many double-page spreads featured in 3DCreative magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large landscape image:

- 1. Open the magazine in Reader;
- 2. Go to the VIEW menu, then  $PAGE\ DISPLAY;$
- 3. Select TWO-UP CONTINUOUS, making sure that SHOW COVER PAGE is also selected.

That's it!

## Get the most out of your Magazine!

If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!









3dcreative Contributors

#### **CONTRIBUTING ARTISTS**

Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in 3DCreative magazine, please contact: simon@3dtotal.com



#### JOSE Lazaro

Jose Lazaro is a freelance character artist based in the UK. After working in big titles like CastleVania: Lords of Shadow and



Dead to Rights he has decided to change his career creating characters for indie games with more artistic and technical control, developing the pipeline and the final result. Currently he is a mentor for one of the best CG schools.

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#### GAVIN Goulden

Gavin Goulden is a character artist for Irrational Games working on Bioshock Infinite. With 6 years games industry

environment art assets to multiple titles including

Dead Rising 2, The Bigs 2, Damnation and

FEAR 2.

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experience, he has contributed character and



#### LINO MASCIULLI

Lino Masciulli worked as an art director in the advertising field until 2006. In recent years he moved into the entertainment



industry by working as the lead modeler for Rainbow CGI in Rome participating in the production of "Winx and the Secret of the Lost Kingdom", "Winx Club 3D Magic Adventure" and other movies. He currently works for the same company on other animated feature films.

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#### ANTO JURICIC

Anto Juricic Toni is a character artist and he currently lives in Bosnia and Herzegovina, where he works at Primetime

Studio as a modeler and texture artist on animated features. Along with his passion for creating CG characters he also enjoys teaching others and sharing his techniques through many online tutorials and publications.

http://anto-toni.cgsociety.org/gallery/ monty.band@gmail.com



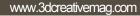
#### RICHARD TILBURY

Has had a passion for drawing since being a couple of feet tall. He studied fine art and was eventually led into the realm



of computers several years ago. His brushes have slowly been dissolving in white spirit since the late 90s and now, alas, his graphics tablet has become their successor. He still sketches regularly, balancing his time between 2D & 3D.

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#### **CONTRIBUTORS**



#### ANDREW FINCH

Aged 28 and living in the great city of Birmingham, in the U.K. He has a degree in 3D Animation which inspired his

passion for environment art. He now works as an environment artist at Codemasters. He says, "Working in the games industry is exciting: you never know what the next project will be and there's always something new to learn. This helps to keep you creative and grow as an artist." afinchy@googlemail.com





#### RAFAEL GHENCEV

Rafael Ghencev is Brazilian character artist. He studied film animation, but it is in traditional art that he considers to



be the greatest secret of art. Because of this he is always studying sculpture, painting and photography.

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#### ROBIN BENES

Robin Benes is 27 years old graphics artist living in Prague, Czech Republic. He has worked in CG for over 11 years

and his biggest interest is modeling/design. He studied classical art forms and promotional art.

After many gaming projects he now works as a freelancer character artist for game and film companies.

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#### Stanko Stupar

Stanko is a 24-year old self taught digital artist from Serbia.

Ever since he watched an animation by
Pixar he decided he



wanted to join the CG community. He is a bit of a generalist but he enjoys the field of animation most. Currently he's working at the Trilateral studios and was involved in projects like GTA, Red Dead Redamption and Total War.

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### Would You Like to Contribute to 3DCreative or 2DARTIST MAGAZINE?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers, and more. For more information, please send a link to your portfolio, or send examples, to: simon@3dtotal.com



#### Interview with Robin Benes

I see from your profile that you're currently working freelance. Can you tell us how you came to be involved with CG and why you chose the freelance route?

My interest in CG began when I started to first play games on a PC. I began to imagine what could be found in a few pixels and started to create my visions on paper and other forms of art. Later, I joined a school with the intention of promotional and classical art forms. 3D applications were missing however.

In the second grade, I saw an amazing *Diablo* 2 intro and it made me realize that 3D graphics was going to be my hobby and dream job.

I began to learn 3ds Max V2.5 and when I finished school I joined a gaming company as a senior 3D/2D artist.

There were more reasons why I chose the freelance route, the main one being the lack of job offers in my country (gaming and film companies). The second is that as a freelancer I have a chance to work on many different types of projects, meet interesting people and lose my temper over dodgers and so on [Laughs].

What was it specifically about the *Diablo 2* intro that sparked such a definitive decision to pursue a career in CG?

There is no specific reason except the all-round high quality CG containing great characters, their transformations, particle effects, animations, simulations, music and most importantly – the story. I think that the Wanderer being morphed into the shape of Diablo, Tyrael with his wings and other great stuff by Blizzard made many of us say: "Wow, this is what I want to know and do!"

What was it like working on *Mafia 2* as a supervisor and senior artist, and what were the main challenges you faced?

Working on *Mafia 2* was really interesting. As a supervisor I was responsible for passing on the correct technological procedures to junior



character artists and checking their output for the further usage. As a senior artist I produced members of the Mafia clans and civilian folks. The work consisted of high poly, low poly, UV preparation, texturing, skinning, and exporting into the engine along with the shader setup. In terms of production I cannot remember any problems and people were very enthusiastic about the project. It made them open-minded and agreeable to solving any glitches that occurred.

What types of characters interest you the most and what do you feel are some of

the key guidelines to bear in mind when designing characters in general?

I prefer characters with interesting features (deformations, wounds, scars, interesting tattoos); something that makes the audience interested and left wanting to find out more about their past and reasons why they look the way they do.

Creating the character history is also a fundamental aspect of the whole design, together with giving the character the correct anatomy.

#### **3dcreative**

Which characters have impressed you the most whether in film or game?

When it comes to film, it is absolutely H.R.Giger's *Alien*. It will be my number one forever. In games, my most vivid memories are linked to *Diablo*. I destroyed a few mice while playing it.

How do you normally approach texturing detailed models such as the Goblin Pirate? I think it is a standard approach that everyone uses. I start by sculpting and some model preparation. I then do some UV set planning for all the elements to simplify the further maintenance and minimize problems when creating shaders. After sculpting the details I make UV adjustments to prevent texture stretching. The texturing itself is quite simple. I take advantage of Normal, AOC and Cavity maps to detail the geometry. Of course what is really important is the source of the textures either I take pictures myself and make further adjustments or I use the www.cgtextures. com server which contains a huge high-quality database. Recently, I started to utilize the 3D Coat application, which makes the whole process very effective.





There are quite a few pieces in your portfolio relating to The Scourge Project. Can you describe the idea and background behind it? The Scourge Project belonged to the Spanish company Tragnarion. I joined the company as a senior character artist, later moving to a lead character artist position. The project was a third person cooperative sci-fi game based on the Unreal 3 engine. My task was to create an "Echo Squad" unit - a group of unique mercenaries who stood against the corporation and its experiments with alien technology. When all the main characters were done. I had an opportunity to create many monsters and alien creatures. The work on this project was most enjoyable as I was given a chance to realize all of my visions from an initial thought through to design, models, textures and shaders up to the finished characters in the final product. It was also my first experience with the Unreal 3 engine and my first of many relocations abroad. so I value this experience as the best so far.

Being able to design the characters is a great opportunity. As a 3D artist how do you go about tackling this challenge?

Designing a character or practically anything these days is very problematic – most of the

great designs have already been used and processed. In most cases, there is some similarity with an existing and well-known design. This usually leads to a strong criticism of copying/duplicating/plagiarism. There is no other way than to use all of one's skills, get all the inspiration possible and try to come up with something more complex, interesting and new for the audience (client, CG forum etc). However, there are clients demanding a specific style (*Gears of War*, for example) and at that point there is no more creativity.

#### What is your typical workflow when creating a new character?

I think my workflow is pretty standard. My first ideas and visions of new characters start with a search for particular elements on the internet. These elements are usually essential for the character – armor, weapons, hairstyle, historical drawings and the photographs of old civilizations and their technology. I always try to think first about the reasons why the characters should have this and that in terms of logic. I would say the essential thing is the historical background; what the character has been through and has experienced. When I'm inspired enough I start with the 3D base modelling, UV, ZBrush







detailing, maintaining UV for stretching and sculpting, generating all the maps, exporting models into 3ds Max, light setup, basic shaders and then after all this the texturing can start. I like to do everything continuously and move on to the texturing part of the model/shading when I am happy with the quality. Then I can move on to another model.

If you had the opportunity to work on any film, what would it be and why?

Rather than being interested in the film itself, I am more interested in the company and the bunch of people working together, sharing their know-how and growing together. I prefer darker fantasy/sci-fi movies like *Pan's Labyrinth*,

Hellboy, Aliens, Predators, Event Horizon and Pandorum. What I look forward to is Prometheus from R. Scott, which I hope will be a film breakthrough.

What is it about the darker side of the mind that appeals to you from an artistic point of view?

The "darker" side of the mind has always been much more interesting to me compared to the "pure/bright" one. Bad guys always have a more interesting past; you never know what to expect from them and generally the overall design phase is such a creative orgy. The good guys are, in practice, only copies of a single character. One cannot expect much from them

 expect them to get the bad guys "into line" and avenge their loved ones. That is a bit boring.

Many thanks for taking the time to talk to *3DCreative*.

I thank you too, and wish your magazine a long and successful future.

#### ROBIN BENES

For more from this artist visit:

http://www.tes3d.com

Or contact them at:

tes@tes3d.com

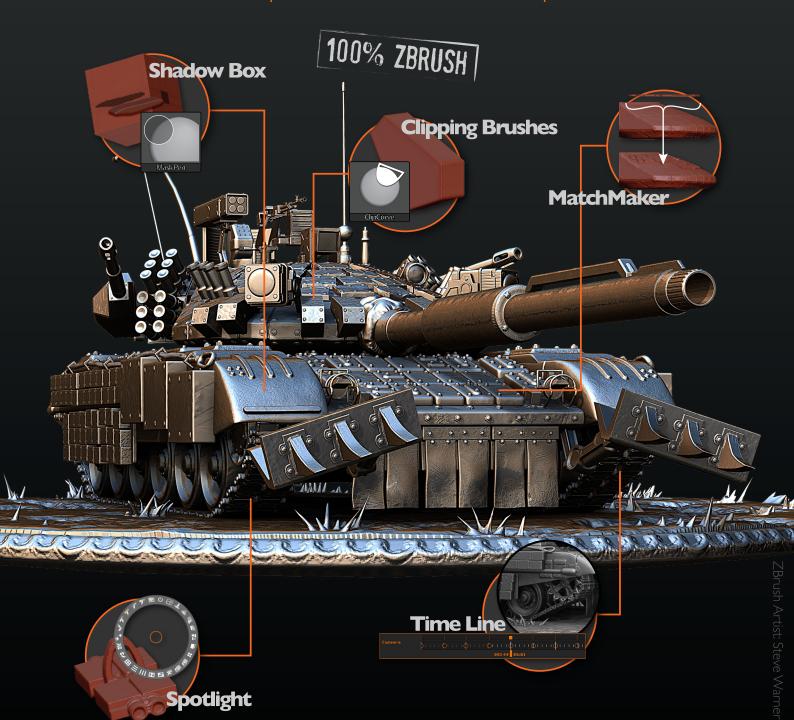
Interviewed by: Richard Tilbury







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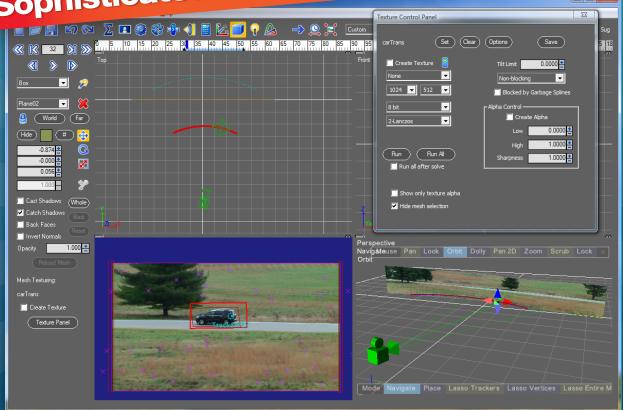
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#### ON WHEELS

#### Anton Cherenko

http://cherenkoart.blogspot.com antonart84@bigmir.net (Above)

#### ANALOG ROTARY MOBILE PHONE

#### Kev Reid

http://www.diervek.com diervek@gmail.com (Below)









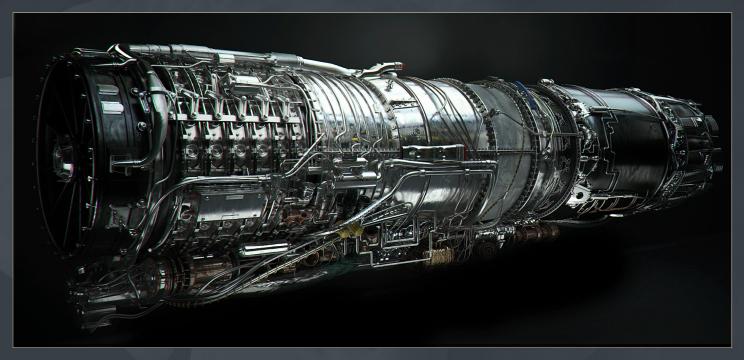


#### THE INTERVIEW

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#### ENGINE STUDY

#### **David Lesperance**

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#### CARROTS ARE FINISHED..

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(Right)





#### MONASTERY

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### **MODELING FEATURES OF** THE HUMAN ANATOMY

CHAPTER 1 - EARS



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

#### COMING UP IN THIS ISSUE...

This month our artists will show you how to model ears.

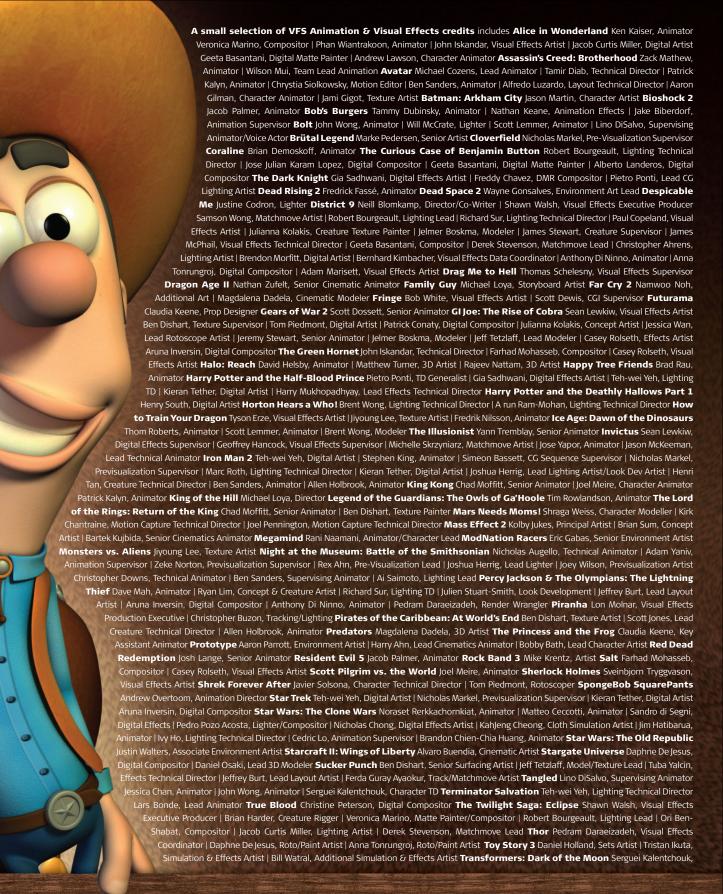
So if you're interested in seeing the first chapter of this great series, please flip to the back of this magazine and enjoy.

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MAYA - PAGE 072

💮 Cinema 4D - Page 076

MODO - PAGE 080

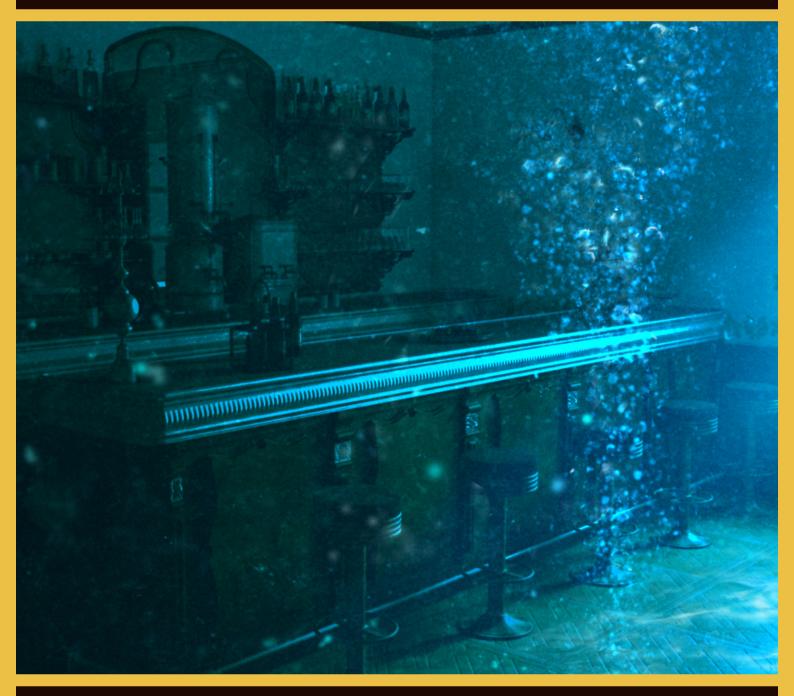


## 3d ANIMATION & VISUAL EFFECTS | CLASSICAL ANIMATION | DIGITAL CHARACTER ANIMATION VANCOUVER FILM School. vfs.com/animationvfx

Rigging Lead | Jooyong Lee, Roto/Paint Artist TRON: Legacy Craig Calvert, CG Supervisor | Brenda Li, Roto/Paint Artist | Jose Julian Karam Lopez, Digital Compositor | Christopher Ahrens, Lighting Artist | Alberto Landeros, Digital Compositor True Grit Tom Piedmont, Roto/Paint Artist Uncharted 2:

Among Thieves Mike Yosh, Lead Animator Up Bill Watral, Visual Effects Artist WALL-E Daniel Holland, Production Artist | Bill Watral, Effects Artist Mark Shirra, Layout Artist Warhammer 40,000: Dawn of War II Nathan Hocken, Lead Animator | Ian Cumming, Senior Artist | Claire Roberts, Artist | Christine Hubbard, Artist | Allan Dilks, Artist Watchmen Shawn Walsh, Visual Effects Supervisor | Lon Molnar, Visual Effects Supervisor | Sean Lewkiw, Technical Head of 3D | Ty Duperron, Modeler | Pearl Hsu, 3D Artist | Matthias Lowry, Digital Compositor | Freddy Chavez, Compositor | Dominic Cheung, 3D Artist | Cynthia Rodriguez del Castillo, Digital Artist Where the Wild Things Are Justine Codron, Lighting Technical Director The Wolfman Karin Mattsson, Animator | Joshua Herrig, Lighting Artist/Look Dev Artist Zombieland Mike Rhone, Visual Effects Artist 2012 Zeke Norton, Previsualization Supervisor | Jamie Bowers, Texture Artist | Christine Peterson, Digital Compositor | Anuj Patil, Senior Technical Director to name a few

## PHOTOSHOP POST EFFECTS



Photoshop is becoming more and more important in the work flow of a 3D artist. If you are creating 3D stills, using Photoshop is a great way to complete your image and add effects quickly and effectively. In this tutorial series Photoshop pro Richard Tilbury will be showing how to totally transform an image in Photoshop. We will start each chapter with a textured 3D model. That model will then be put into Photoshop, where Rich will turn it into a polished image. Using Photoshop can be daunting to 3D artists as many see is as a tool for digital painters, but Rich has provided simple, step-by-step techniques and methods that will transform your work flow forever.

CHAPTER 1 | JANUARY ISSUE 065 Fire, Heat Haze and Smoke

CHAPTER 2 | FEBRUARY ISSUE 066 Sparks and Glows

CHAPTER 3 | MARCH ISSUE 067 Space

CHAPTER 4 | THIS ISSUE Underwater

#### CHAPTER 4 - UNDERWATER

Software used: 3ds Max & Photoshop

#### INTRODUCTION

This tutorial explores how to transform a regular scene into an underwater environment. We will begin with a base 3D render, which in this case is a scene created by Yannick Lecoffre that he has very kindly given us permission to use. The scene depicts a small bar in Paris and so we will imagine that through some terrible natural disaster the city has become engulfed by the sea and is now completely submerged. If we ignore the title it is also plausible to see the scene as a bar on a luxury ocean liner that has sunk and now resides at the bottom of the sea somewhere.

Fig.01 shows the original render by Yannick. We can see that the main light source is coming from the window on the right. If one was setting up a render in preparation for some Photoshop work, then it follows that the lighting and any special conditions would be set up beforehand in order to support the post-work and minimize the level of adjustment. Regarding the case in question, the light would probably have been less intense given the eventual conditions and perhaps there would have been some bottles and debris floating around the room. If you want to depict a scene that had been submerged for any length of time then you may also want to create some grunge textures to coat the



furniture and walls, as well as some barnacles etc. However as we are transforming a render that was not been intended to be underwater we will assume it has just been flooded and so still looks quite pristine. We will also assume that the water is not too deep and so there is still a reasonable level of light streaming through the window, which will conform to the current lighting.

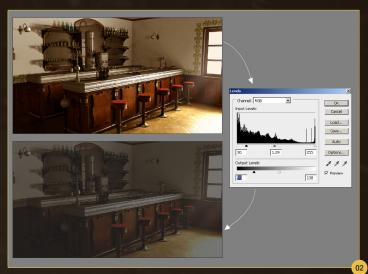
The first port of call is to duplicate the render, so I went to Image > Adjustments > Levels.

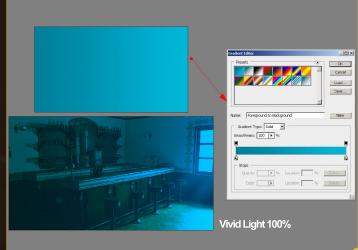
Here I reduced the brightness of the overall image and narrow the tonal range to make the whites darker and the blacks a little lighter (Fig.02).

The next phase is to change the color scheme so that the scene looks as if it is underwater.

To do this I created a new layer and then used the Gradient tool, making sure to select the Foreground to Background preset (Fig.03). I selected an aquamarine blue as the color for one end of the gradient and a slightly darker version for the opposite side, and then dragged this across the image, making sure that the lighter shade was on the window side. Once done I set the blending mode to Vivid Light at 100% opacity.

As the light is now more diffuse and less intense it is necessary to restrict its effect further by darkening the foreground somewhat. I created a new layer and then, using the Gradient tool once more, I chose a dark green and dragged from the left-hand edge across to the opposite side. This time I used the Foreground to Transparent preset, which has been made visible on a white





background in the upper image in **Fig.04**. I then set the blending mode to Multiply at 65% opacity to complete this layer.

The front of the bar is particularly shiny and so to reflect this I thought it would be good if some highlights were picked out even though the bar is underwater. I went back to the original render, then went to Select > Color Range and picked the brightest part along the bar front (ringed in red in Fig.05). I adjusted the Fuzziness to around 112 to capture just the brightest areas. I then copied and pasted these areas onto a new layer and erased the floor and window, leaving just the areas apparent in Fig.06.

I then set the blending mode to Overlay at 60% opacity, the result of which can be seen in Fig.07.

So far we have achieved a lighting scheme and color palette that suggests a submerged room, but the window – the source of the light – looks too dull compared with the interior. To fix this I went back to the original render layer and color selected the three panes of glass (Select > Color Range). I copied and pasted this into a new layer and changed the color to a slightly off-white (Fig.08 – inset 1). I set the blending mode to Color Dodge at 100% opacity, but because it is underwater the light needs to appear more diffuse and so I applied a glow effect (Layer >







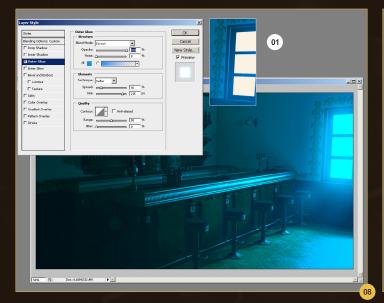




Layer Style > Outer Glow). I used the settings seen in the dialog box, which resulted in the version apparent in the main image.

To help convey the fact that the room is flooded I decided to add some volumetric lighting. On a new layer I used the Lasso tool to select a diagonal area stretching from the window to

the floor. Using a Foreground to Transparent Gradient I then dragged from the top of the window down using a blue similar to that show in Fig.09. Once done I applied some Gaussian Blur to soften the edge and then set the blending mode to Screen at around 50% opacity.





#### PHOTOSHOP POST EFFECTS Chapter 4: Underwater

It is now time to start adding some particles into the water, which is akin to a random array of noise in many ways. A photo of a natural surface such as rock, sand or even moss and lichen can prove useful as a reference, but in this case I chose to use a dirt map from the Total Textures Volume 5 – Dirt & Graffiti DVD by 3DTotal.

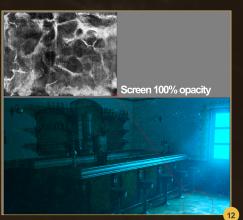
**Fig.10** shows the map in question from which I have sampled the white areas and pasted them into the scene. The layer is set to Screen at 45% opacity and then the Eraser tool has been used to balance the particles.

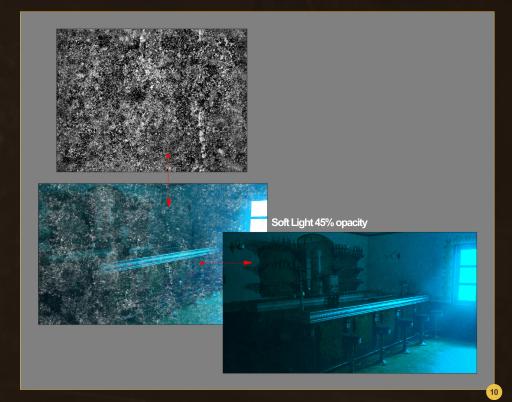
I repeated this technique using a different map to help add an extra dimension to the scene as well as some depth (Fig.11). I sampled an area on the left of the map (ringed in red) and then set the blending mode to Color Dodge at 85% opacity so that just the white parts remain visible.

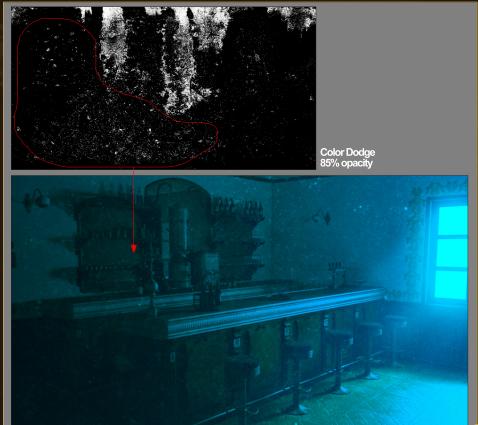
To show that the room is near the surface of the sea, and also to include an effect common to aquatic environments, I decided to incorporate some caustic lighting. Again this was generated from a dirt map which bore a resemblance to those patterns cast by water.

Fig.12 shows the map and how it looks when set to Screen mode and blended in.

The important factor to remember here is the perspective and so it is necessary to use the Transform tools to skew and distort the map so that it is aligned with the floor. You can also



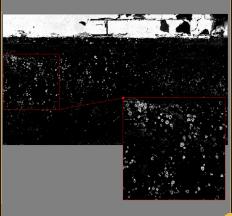




opt to use the Vanishing Point filter if you are struggling. The decision over which map to use and how you blend each into your render will require some degree of artistic merit as there are no strict formulas to follow when enhancing 3D scenes. These approaches do follow some easy steps, but as with anything visual there is always room for interpretation and therefore you will need to make decisions about which aspects to erase once the maps have been copied in.



In order to give the picture a more realistic sense of being underwater it helps to degrade it somewhat by way of some subtle noise and blurring. I achieved this by selecting the levels



layer in Fig.02 and going to Filter > Noise > Add Noise (see settings in **Fig.13**). After applying this I went to Filter > Blur > Gaussian Blur and set the Radius to around 0.6. You can see the



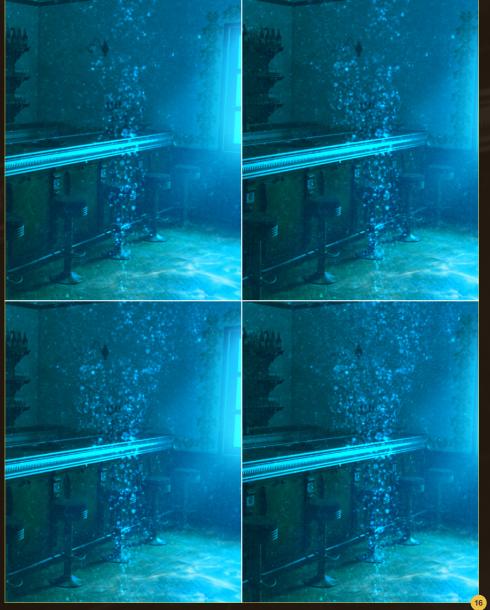
result of these two filters in the lower image in Fig.13, which includes the Dirt map particles, and compare it to the crisp version above.

Another aspect that is also common to underwater environments is the sight of air bubbles. Ideally we would have a library of free images at hand that we could simply copy into our scene, but as these often carry restrictions we shall look for an alternative solution. I again turned to my trusted library of Dirt maps in order to find something that could work, which in this case was a map called "tile02medium05" (Fig.14).

The area I was specifically interested in was the section highlighted in red, which I felt could work as air bubbles. The first stage involved copying and pasting a selection area into the scene (see marquee in upper image in Fig.15). Once this section had been copied in I set the blending mode to Linear Dodge (1). These did not really resemble bubbles as they were too crisp and so I applied some Gaussian Blur (2).

Once done it was simply a case of duplicating and scaling them to create a stream rising upward (3). You can use the Clone Stamp tool to do this, or just copy and paste the original selection and then use the Eraser tool to modify the composition.

Fig.16 shows four stages that involve these steps. The top two images show the larger bubbles whilst the lower two show duplicates that have been scaled down and given a lower



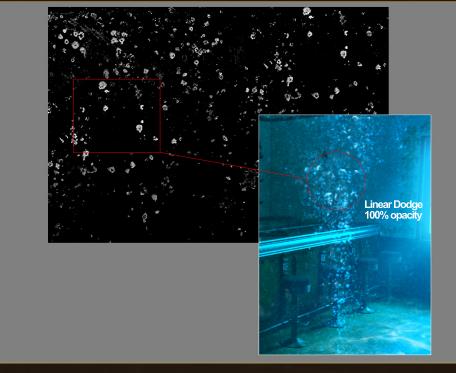
#### PHOTOSHOP POST EFFECTS Chapter 4: Underwater

opacity to create the smaller bubbles. The entire stream was generated from the original Dirt map selection and modified using the Transform tools, namely Scale and Rotate.

The last phase involves adding some highlights across a few of the large bubbles, which again utilizes the same map. I selected an area that was composed of some of the brighter specs and ones that have a slight curvature, as indicated by the red rectangle in **Fig.17**. These are then set to Linear Dodge at 100% opacity and positioned so they look correct. I used the Eraser tool to form small arcs to replicate the shape of the bubbles.

One last additional layer will complete the transformation and constitute a few larger particles that are nearer the camera. To do this I selected an area on the map shown in **Fig.11** and scaled it up so that the white areas were larger. Then I applied some generous blurring and set the blending mode to Linear Dodge at around 75% opacity.

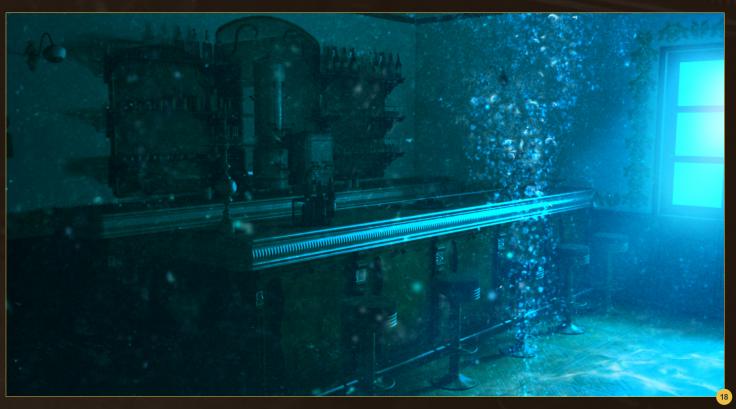
This concludes the transformation of the bar into a flooded chamber, the final version of which



can be seen here (**Fig.18**). I hope this tutorial has demonstrated how Photoshop and post-production can prove both a useful and valid alternative to 3D with respect to creating certain effects, and be of some help in your future projects.

#### RICHARD TILBURY

For more from this artist visit: http://www.richardtilburyart.com Or contact them at: ibex80@hotmail.com





"Polarization is the method used in cinema's at the moment, so if you have seen Avatar in 3D, that effect and it's caveats are roughly what you will experience with this monitor." - GURU3D Dec. 2010

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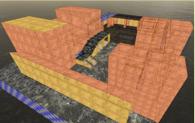
ZBrush Hard Surface Techniques

Constructing a Mechanical Character in ZBrush

# ITALIAN COURTYARD

UNREAL GAMES ENGINE TUTORIAL SERIES











#### CHAPTER 6 - LAYOUT - B

CHAPTER 1 | NOVEMBER ISSUE 063 Project Planning & Software Explanation

> CHAPTER 2 | DECEMBER 064 BSP Creation - Draft lighting

Chapter 3 | January Issue 065 Static Meshes and Texturing Part 1

CHAPTER 4 | FEBRUARY ISSUE 066 Static Meshes and Texturing Part 2

CHAPTER 5 | MARCH ISSUE 067 Layout - A

> CHAPTER 6 | THIS ISSUE Layout - B

CHAPTER 7 | NEXT ISSUE Lighting and Post Effects - A

CHAPTER 8 | JUNE ISSUE 070 Lighting and Post Effects - B

The video game industry continues to thrive and grow at an alarming rate, and is swiftly becoming the most obvious option for employment for anyone in the CG industry. This brand new series of tutorials provides an opportunity for anyone trying to get into the business to learn how to create a basic game level portfolio piece that would impress any potential employer. Using the Unreal Development Kit, UK-based artist Andrew Finch talks us through the entire creation process, from downloading the free software and choosing its settings, to importing and texturing accessories. This really is a must have for anyone interested in gaming or game design.



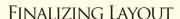
- Free Assets, which include:
- DECAL LARGE CRACK
- WOODEN FLOOR DIFFUSE
- Plaster 04 Diffuse
- WOODEN FLOOR NORMAL

- PLASTER 04 NORMAL
- Wooden Floor Specular
- PLASTER 04 SPECULAR
- WOODTILE DIFFUSE
- SKY DIFY
- WOODTILE NORMAL
- Stains Decal
- YELLOW PLASTER 05

#### Unreal Games Engine Tutorial - Chapter 6: Layout - B

Software used: UDK (Unreal Development Kit)

Hello and welcome to Chapter 6 of this UDK tutorial series. In this chapter I will be talking you through the final stages of the layout process and make a start on the final polishing tasks to really make this environment come to life. I will show you how to create decals and place them in UDK to add details such as grime and cracks. This not only adds life to your levels but helps us break up repetition in the texturing. Continuing where I left off in the last chapter using the assets I provided you with and also the assets that are in the UDK library, I have continued to place static objects on and around the buildings.



You can see in this image (Fig.01) that I have placed handrails up the side of the staircase. Also I added an archway under the stairs to provide some architectural difference and break up the hard lines of the BSP geometry. You can also see I have added a cut horizontally across the main building and applied a different colored texture. I did this to break up the colors as I felt there was too much orange in the scene. To







aid this break up of textures I added a row of trimming from the UDK library. You will notice in the tutorial that I have used this asset a few times. It helps to break up surfaces and add detail.

Again here is a very simple layout (**Fig.02**). I have added a small stone wall both sides of the white building. I will use this area as a planting area later on to add vegetation. Again, don't worry if you think it is too simple at this stage. We are building this environment up layer by





layer, so we have equal amounts of detail throughout the level, and don't get too bogged down in one area and neglect others.

I have done the same here as I did in the area in Fig.01. As you can see I've added railings and trims on the buildings (Fig.03). A good tip here is to add a trim around all of the structures as this helps gel the buildings and the floor together. Also note the addition of the planting area behind the stairs. Later in the process we can grow a climbing plant in here to break up the wall surface further.

Underneath the porch I have added archways, and also you will notice I have cut a hole into the BSP geometry so I can add a door frame and sit the blue door into the wall. Cutting a hole into the wall will also give us a nice shadow behind the door, giving the illusion of a room behind the door (**Fig.04**).

You can see in **Fig.05** that I have left a dirt area so I can plant grass and bushes on the floor, and really break this area up and make it into a small garden area, which will perfectly suit the pond we have cut into the floor. I have added trimmings all around the edges here to break up the simple BSP geometry.

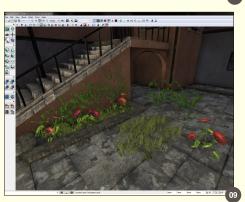
#### Chapter 6 | Unreal Games Engine Tutorial Series THE ITALIAN COURTYARD



I have added a wooden tillable texture to the floor of the corridor and also placed trim assets horizontally and vertically to break up the repetition and give some 3D detail to the floor surface (Fig.06). I have added all the additional textures and assets to the resource pack of this tutorial.

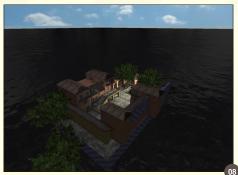
Fig.07 shows the whole of the pond area. I will explain later how to add water to the pond. Water is great for adding movement to the environment, as is vegetation. It is very important to add signs of life to your environments by adding movement in assets. It convinces the player they are in the environment. Using particle effects is also a good way of adding movement. We will use all these methods in this area so it should really come to life. I have used a tile asset that has a few tiles removed; this adds a bit of decay to

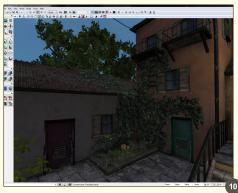




the level and makes it look like a used area. It also gives us the opportunity to add grass. This benefits us by not only breaking up the assets repetition, but also adds a bit of spot color, without the environment looking dull.

This aerial shot shows you what's outside the level (**Fig.08**). It's important to have something out there just in case the player manages to see outside your level. I've added a water surface





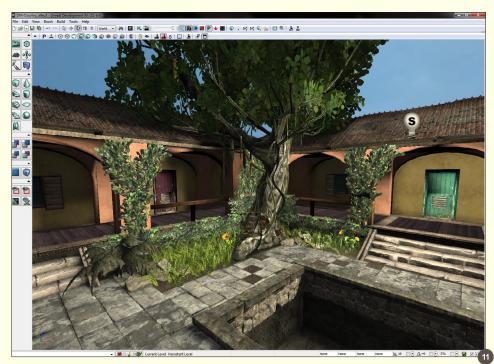
but most of it will be covered by fog when we come to the final polishing stage. I have also added the skybox asset, which is in the UDK library. I have added my own texture to this asset as I couldn't find a suitable sky. I will show you how I added my own texture later in the tutorial.

Now it's time to place the vegetation. For this tutorial I will use only what UDK has provided in its library due to time constraints. But for your portfolio I strongly urge you to create your own assets to place. You can always place existing assets to get the composition right and then later replace the assets with your own.

**Fig.09** shows a collection of vegetation assets in isolation and on the left I have an assortment of them in the plant box areas we created earlier.

In **Fig.10** you can see I have used the climbing ivy asset and placed it climbing up the walls in the corner of the buildings. This really helps to tie the buildings together and hide the seams and texture repeats.

**Fig.11** shows I have combined both techniques to create the garden area around the pond.





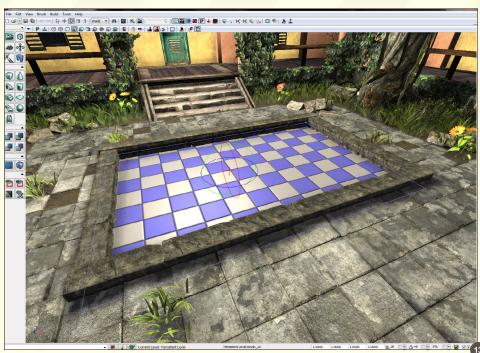
#### CUSTOM SKYBOX

A skybox is just a sphere that is halved with a sky texture applied. You can create your own semi sphere or you can customize an existing one. If you type "skybox" into the search section of the Content browser you will find a variety of skyboxes. None of the textures would fit our scene so I created a sky texture that was 2048 x 1024 and replaced the texture on the skydome with our custom one (Fig.12). You can get a lot more complex with sky setups but this suits our level's needs for the moment.

#### WATER SURFACE CREATION

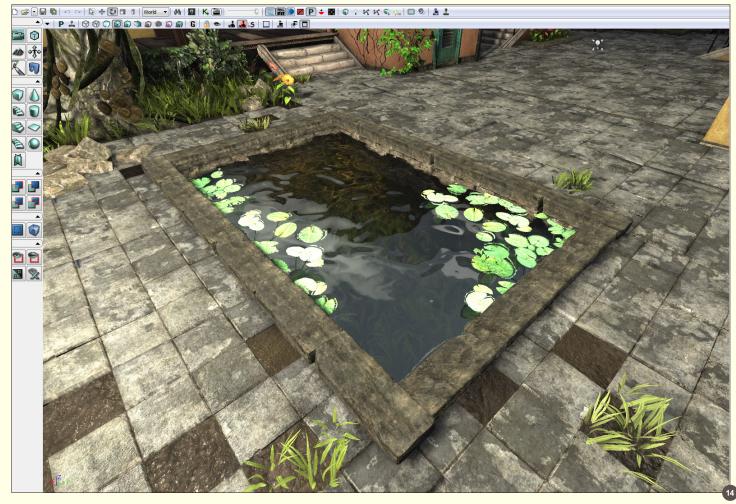
Creating the water surface is very simple.

Create a BSP plane in position over the pond



area shown in **Fig.13**. For the watery material I used "M\_Water\_02\_opt", which can be found in the Content browser; just search for that name and apply it to the BSP plane geometry.

If it is out of scale you can increase the tilling of the material by pressing F4 with the polygon selected in the options, increase the tiling until you get a suitable result (**Fig.14**).



#### Chapter 6 | Unreal Games Engine Tutorial Series THE ITALIAN COURTYARD





## DECAL CREATION AND PLACEMENT

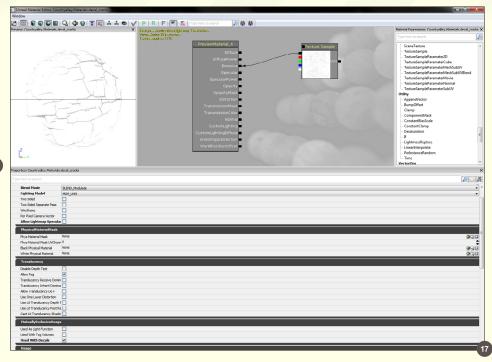
Decals are very simple to create and add a lot to the final composition of your scene. Decals can be used to add damage and grime to the walls, which will help break up the texture repeats and add little pockets of detail and interest. A decal is an "actor" that we place pointing at the surface and projecting a texture. I've created three decal textures (supplied with this tutorial) using textures from cgtextures.com (Fig.15). I isolated the details I wanted to keep and be projected. I then created a new material, imported this new texture (Fig.16) and linked it to the Emissive and Diffuse nodes. Use the settings shown here in Fig.17.

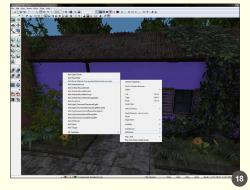
With this new material selected, in the viewport select the mesh where you want the Decal Actor to be placed and right-click and select "Add Decal Actor... material name..." (Fig.18).

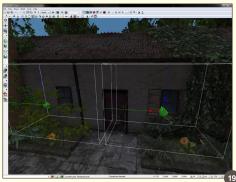
A new icon will appear and your decal texture will be placed on the surface you selected Fig.19. You can scale, rotate and move these decals to get the desired effect.

Use these same techniques to create and place the remaining decals, or feel free to create your own decals. Fig.20 shows a completed building with a variety of decals placed.

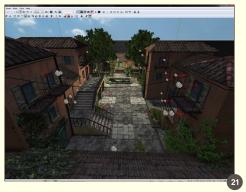
Fig.21 shows a final aerial shot of the environment with all the meshes and vegetation placed and the decals in position. The skybox seals the scene into a complete scene; all that's left now is to add the finishing touches and make this environment look as good as it can. In











the next chapter I will talk you through setting up the lighting for this scene, which is my favorite part of creating any scene and really brings the environment to life. Thanks for reading.

#### Andrew Finch

For more from this artist contact them at: afinchy@googlemail.com



- Free Assets, which include:
- DECAL LARGE CRACK
  - WOODEN FLOOR DIFFUSE
- Plaster 04 Diffuse - Plaster 04 Normal
- WOODEN FLOOR NORMAL - WOODEN FLOOR SPECULAR
- PLASTER 04 SPECULAR
- WOODTILE DIFFUSE
- Sky Dify - Stains Decal
- WOODTILE NORMAL - YELLOW PLASTER 05

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## 3D CHARACTER DESIGN SERIES WITH SCOTT PATTON

In this two volume series, Scott Patton shows the processes he uses to create a 3D character for feature films. The first volume explores Patton's fast and efficient method for concept sculpting, skipping the 2D sketch phase all together and designing the character entirely within ZBrush®. He covers everything from blocking out the forms and fleshing out the muscles, to adding props, detailing with alphas and posing the character. The second volume covers methods for creating a final color rendering using ZBrush and Photoshop®. Patton shows how he squeezes the most from ZBrush's powerful renderer to create both a wide and close-up shot of the character. He then shares creative Photoshop tips and tricks to quickly get to a finished piece of concept art from the ZBrush renders, covering topics such as adding and refining skin texture, hair, eyes, shadows and scars. Patton also discusses how to create backgrounds that enhance the character and overall composition.

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## ·CLASSICAL SCULPTURE



## · GREEK SCULPTING·

Modern art in all genres is heavily influenced by its history. With the arrival of ZBrush came an opportunity to put into practice many of the techniques that were used in classical sculpture. In this tutorial series Rafael Ghencev will dissect the history of Greek and Roman sculpture and show you how to create an image in that style. Not only will Rafael talk you through the sculpting, but will also show how to texture and present your sculpt in a classical style. This series will also give some great anatomy tips, and provide you with some great tricks to help you present your sculpts.

CHAPTER 1 | THIS ISSUE Greek Sculpting

CHAPTER 2 | NEXT ISSUE Greek Sculpture Texturing

CHAPTER 3 | JUNE ISSUE 070 Roman Sculpting

CHAPTER 4 | JULY ISSUE 071 Roman Sculpture Texturing

#### CLASSICAL SCULPTURE Chapter 1: Greek Sculpting

## CHAPTER 1 - GREEK SCULPTING

Software used: ZBrush

In this tutorial we are going to study some approaches to creating your own classical sculpture. I'm not a history of art professional, but I'll try to give a short explanation of Greek history. Ancient Greek sculpture is traditionally divided into six basic styles:

- Daedalic Greek Sculpture (c.650 600 BCE)
- Archaic Greek Sculpture (c.600 500 BCE)
- Early Classical Sculpture(c.500 450 BCE)
- High Classical Greek Sculpture (c.450 400 BCE)
- Late Classical Greek Sculpture (c.400 323 BCE)
- Hellenistic Greek Sculpture (c.323 27 BCE)

In this tutorial I'll be focusing on the Hellenistic style and the Baroque period as in this period expression was used to dramatize the sculpts.

In the Hellenistic period sculptors felt less compelled to portray the ideal world like their ancestors. They started to introduce topics such as pain, death and sleep, offering new forms and expressions to explore. The aim was to portray expressiveness and atmosphere, something which is particularly obvious in the portraits, where these were used alongside an accurately sculpted face to capture the character of the subject.

After the Hellenistic period Greek traditions went into obscurity and only in the Renaissance (1300 – c.1602) and Baroque (1600 – 1730) periods did the Greek traditions re-emerge, this time in Italy. We know this period for famous artists like Michelangelo, Benvenuto Cellini, Gian Lorenzo Bernini etc. This is the most famous period of sculpture.



In the renaissance period artists were inspired by their predecessors from the Classic period. On the other hand, in the Baroque period the inspiration was Helenistic sculpture.

At this stage a large driving force in sculpture was religion, and Christian artists absorbed a variety of classical techniques and used and revitalized them. The vast repertoire of postures, gestures and expressions that had been founded by the Greeks enriched their own genius, and they applied these resources when illustrating saints, martyrs, myths and the heroes of the time. For this tutorial I will inspire myself with the Hellenistic style and the Baroque period as in this time period there was a lot of movement and drama in the sculptures, and that is what we'll try to reproduce here.

#### **ZBRUSH IS ONLY A TOOL**

There's something very important for everyone to understand from the beginning. We must understand that CG modeling is only a tool, like a pen or carving tools used for sculpting. Nowadays I see a lot of guys starting CG thinking that the only thing you need is to read

comic books and know ZBrush. They have forgotten that sculpture is more than that; you need to study your whole life to improve your artistic skill and think about your motivation, background, feelings etc. Remember to always study classical arts, like drawing and sculpture, photography etc. This will make you a better artist.

#### STARTING THE PROCESS

First of all we need to collect references - a lot of references! This is to understand the style and the process. We need to study the poses, feelings and emotions that the classical artists achieved with their pieces. You can do this with a simple search on Google.

#### PLANNING THE PIECE

Before we start to build the model we need to plan what we'll do. The first thing I did was to think about the subject. I decided to represent man's fall in the Garden of Eden. My idea was to show Adam on the ground with the fruit at his side. Once you have an idea start planning how you will build the piece and make it strong and dramatic.

#### Chapter 1: Greek Sculpting CLASSICAL SCULPTURE

We have a couple of options, firstly we could draw something and make a few sketches to get an idea of what we want, but I know there's a lot of good artists that can't draw, so in this case I'll show you a different approach to plan your model. In the past artists used to build simple maquettes to understand and test the idea, pose, drama etc. So that's what we'll do.

## Preparing our maquette

Open ZBrush and go into Light Box > Project > Mannequin and choose "8headMan Ryan" (Fig.01). This is a simple maquette that is easy to manipulate. This will help us to do some poses and layouts to decide how the model will look (Fig.02).

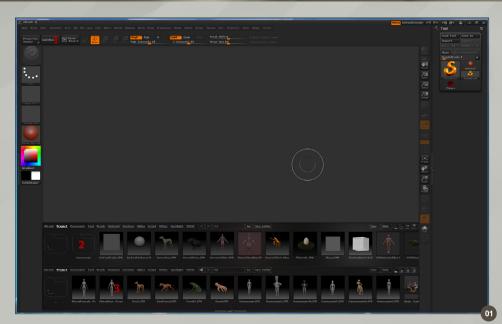
Using Move (W) and Rotate (R) we can play with the character, manipulating the arms, hands, legs, head etc (Fig.03). Using these tools I created three different poses whilst trying to improve my idea and make it strong and dramatic. I decided to go for the second: Fig.05 (Fig.04 – 06).

#### STARTING THE MODEL

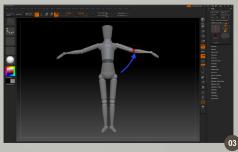
Now we have decided how the model will look, we can start to build it. The first thing we need to do is make a simple mesh, which I like to use because there are no generic shapes in there, and nothing is pre-made. We need to think and transform the base into a unique model (Fig.07). With the base mesh in your hands you can start to build the basic shapes.

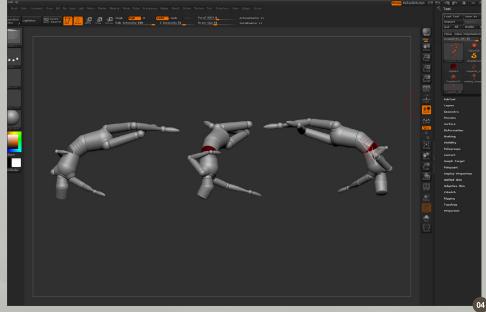
There is something we can use in our favor, and that is symmetry. We don't need to build one side at a time. However you do need to know











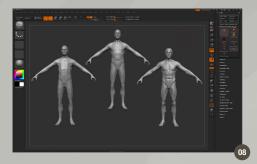




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the right time to use it and when to turn it off and starting working without it. I will show you when it's time to turn it off. By pushing the X button you will activate the symmetry and then by using the Move brush you can start blocking in the basic shape of the model. At this point the important thing is to reflect correct human proportion.

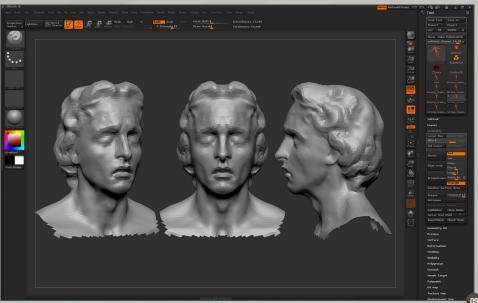
TIP: The important thing here is to work on the structure of the model. Fewer polygons is better when working on the big shapes and defining the silhouette. Only divide the mesh if you have already made all the possible corrections in that level of division.

Once you have added one more division you can start to use the Standard brush to make some muscle mass and the basic form of the head. By adding one more division you can start to use the Clay brush to refine the individual forms, always checking if the proportions are correct. You can also add a little information on the head, like the mass to represent the hair. At this stage we can see the structure of the model is already done. All the important volumes are in place (**Fig.08**).

## REFINING MUSCLES AND MEMBERS

Now you can add one more division and use the Clay brush to continue to work on the muscles and refine the face and head. This is important as we can now see how the expression on his face will look (**Fig.09**).

For the body we need to create a more natural look by adding more muscle information and by trying to balance the bones, muscle and















fat (**Fig.10 – 15**). This is a good point to start working on the hands and feet. When working on these parts you should try to always use a lot of references, because these parts are very important and expressive. If these elements are not done well the model will not be strong enough. Classical artists spent more time on

the hands and feet than the face, because they knew that these parts were important when it came to showing power and emotion.

Now it's time to turn of the symmetry and start to pose your character. You should always finish the structure of the model before you turn of the symmetry and then you can put the detail on each side differently, to show some imperfections etc.

#### POSING

The next part is the bit that scares everyone.

This would be very difficult if we hadn't planned before. With our simple maquette made, everything from this point will be easier to do.

The first thing to do here is to get our maquette on the screen and do some snapshots with Shift + S. You should get some different angles to help as references (Fig.16).

Create a layer for our pose in Tool > Layers and name it "pose". This is important to protect the original model in case you make any errors. After this press the R button to activate Transpose (Rotate).

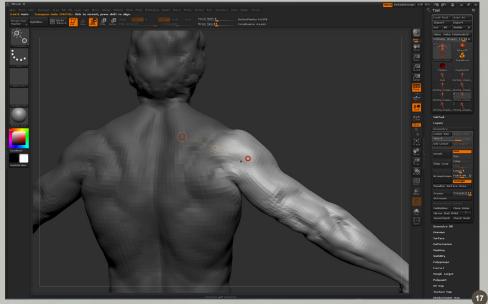
With the Transpose button activated we need to create a mask to start the posing. So hold down Ctrl and click on the part of the body you are going to edit. The important thing here is to always create the mask while thinking about how the bones work in the real life. Without this knowledge you can't get a good result using Transpose (**Fig.17**).

To organize the transpose process better I always transpose by starting with the big areas and moving onto the smaller ones. The first thing to do is transpose the torso, legs, arms and head, but do not try to perfect the pose on the first try. Start by working on the basic form of the pose (**Fig.18 – 19**).

TIP: It is always important to fix the proportions











and muscles when working with Transpose tool, because sometimes this tool changes the model a lot and we need to fix things at the same time. In the image we can see a lot of errors in the proportions caused by using Transpose – like the size of the chest, which is too stretched – so we need to fix these using the Move brush (Fig.20).

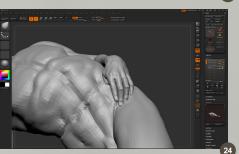
After that we start refining the pose, adding more drama in the arms and back, and flexing the legs a little (Fig.21 – 22). When every part is in place you can start to correct the pose of the hands and fingers (Fig.23 – 25). And then do the same thing to the feet. It's important to do these parts patiently (Fig.26).

#### Adding skin details

With our pose finishing it's time to finish our piece. Using the Clay brush, refine each element. Create the area where the skin compresses on the neck and back etc (Fig.27). Also at this point you should continue to refine his face and expression, and work a little more

















#### Chapter 1: Greek Sculpting CLASSICAL SCULPTURE

on the hair (**Fig.28**). This part of the process is a little complicated and took some time to do, because we need to know how the skin behaves when pressed and how the muscles work in that pose to improve the natural look.

## CREATING THE BASE AND APPLE

Next it's time to create the base to your model. You should be asking: why didn't I do the base from the beginning? I didn't do this at the beginning because I didn't want to limit my pose to the base. I prefer to try to get the best pose I can without worrying about the shape of my base. So now we can build a base and fit it onto the model. To create this, we want to build a cylinder in another 3D package, bring it into ZBrush and started to push it around using the Move brush to fit it to the model (Fig.29).

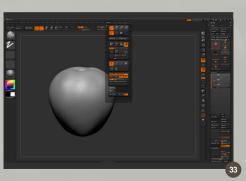
After you have done this start to work with the Clay brush and adjust things to add some volume. Then flatten these to make it look like a rock (Fig.30).

Then we can start to use the great Noise tool.

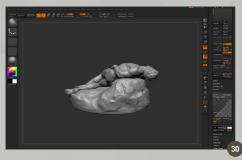
This tool will help us a lot when creating the look of a rock. By playing with the curve and its strength you can create a good result (Fig.31).

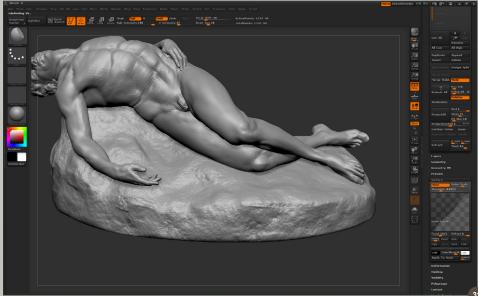
Using the Planar we can create some flat areas in the middle of the rock (Fig.32).

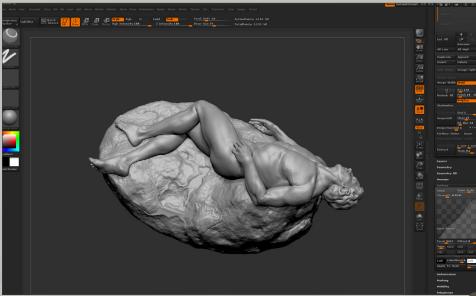
To finish our prop, get a simple sphere and using Radial symmetry start to create the shape of the apple (Fig.33). With the basic shape sorted turn off the symmetry and bring some asymmetry to the apple.

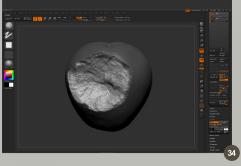












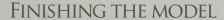
To do the bite I used Claytubes and carved a hole; for the rest of the model the Clay brush will do the job. The only thing left to try to do is create some kind of teeth marks to create a little realism. Then I used the Noise tool to add a little more texture to the interior part of the apple. This time we need to paint a mask on the external part to avoid the noise being applied to

#### CLASSICAL SCULPTURE Chapter 1: Greek Sculpting





the whole apple. Then press "apply to mesh" to bake the noise to the polygons (**Fig.34**).



Almost everything is finished, we only need to put the apple in its place (Fig.35). I decided to add some little veins to his arms, not too much just a subtle touch. We can do this using the Standard brush and then use Smooth to make some areas show up more than others (Fig.36).

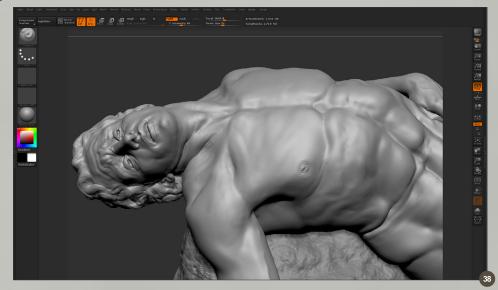
We can do more work with the Clay brush by adding some volumes to the skin and use Inflat to compress the skin a little more against itself, for example by the fingers (Fig.37 – 38). And here we have our piece finished (Fig.39).

We can see how we don't need a hyper-detailed model to see great quality in our work. The beauty of this art is that it is in the form not in the details. See you in the next chapter where we will look at how to render this piece.

#### RAFAEL GHENCEV

For more from this artist visit:
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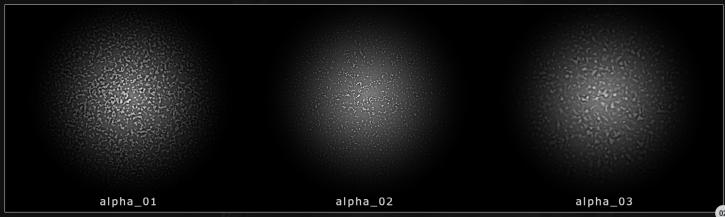


## MAKING OF

# ABRAHAM LINCOLN







#### ABRAHAM LINCOLN

Software used: ZBrush, 3ds Max, V-Ray, & Photoshop

#### INTRODUCTION

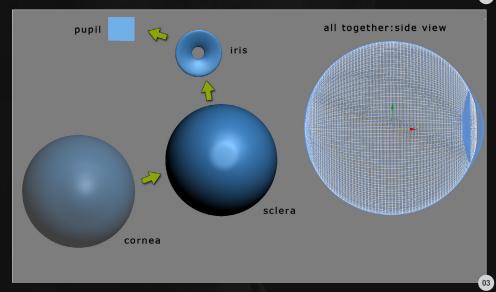
I am a big fan of caricatures and ever since I joined the CG community I've wanted to create one in 3D. I wanted to create a model with a recognizable face and lot of wrinkles. I also wanted to use V-Ray's SSS2 shader and spice it up with an interesting hairstyle. Abraham Lincoln was just perfect for this.

#### REFERENCE

For the reference I used a beautifully handdrawn image by Roberto Freire and I want to thank him for letting me use it.

#### MODELING

Since I have modeled a few heads before I decided to use one of those as the starting point. To allow me to practice my modeling I chose a model that was the total opposite of Abraham Lincoln (**Fig.01**).



I use ZBrush for modeling and my pipeline is pretty simple. In most cases I use the Standard, Clay and Move brushes with a little help from the Smooth brush, of course. For this image I downloaded alphas for the skin from the internet and tweaked them a little bit so they were easier to use in ZBrush (Fig.02).

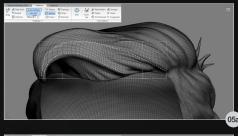
There's no secret when it comes to the modeling stage; everything is about perception

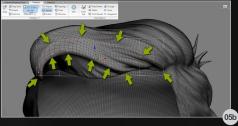
and chasing forms until you are happy with the result. You should try to keep the topology good from the beginning or at some stage do some retopology. This is important because you may later wish to animate your character.

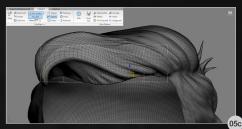
The eye model consisted of four parts; the iris, sclera, cornea and the plane behind the iris representing the pupil. This was just to stop the light from getting into the eye (**Fig.03**).









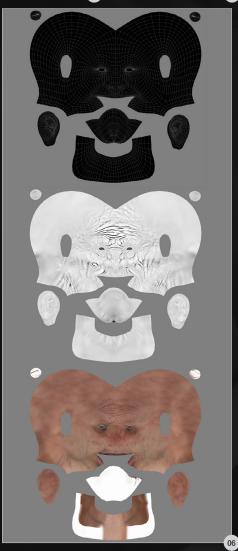


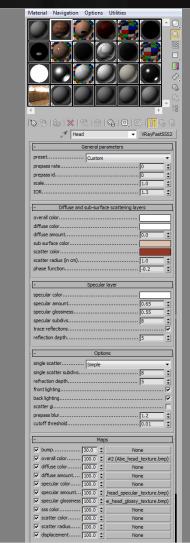
#### Hair Modeling

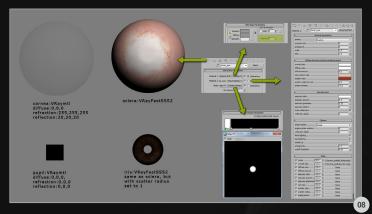
For the hair I used the Hair and Fur system inside 3ds Max. This part of image was fun but also very hard to do because the hair consisted of 12 layers, and it took me almost two weeks to get it all done. The shaping of the hair and beard was the hardest part to carry out because of all those curly shapes. The rest of the layers represent the clusters above and behind the ear and the additional hairs like those on the suit (**Fig.04a – b**).

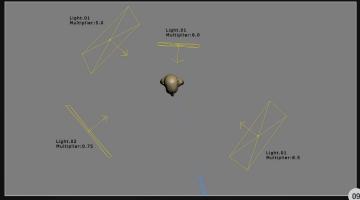
Since I used a high resolution head model for the render I needed to export the lowest subdivision level model from ZBrush and cut out only necessary polygons for my scalp model. I used the spline modeling method as I think this is the best way of modeling when it comes to hair. The placeholder hair that I made in ZBrush helped me a lot because I projected guide splines onto it with the help of the Snap to Surface tool, which is under the Freeform tab in the Graphite modeling tools (**Fig.05a – 5c**).

After snapping the splines to the surface they needed to be simplified by deleting the unnecessary vertexes and tweaking the rest to











get the desired form. When I was satisfied with the form I just played a little with the kink, frizz and multi-strand parameters, which make hair look much more realistic. As for the hair shader I only used a texture for the density and tweaked the default settings.

#### **TEXTURING**

For some time now I have been using headus UV layout when unwrapping my objects. It's an unbelievably smart and quick program, and also very easy to use. I used Zapplink for the texturing and had very good reference images that I took in the studio that I'm currently working in. It is very important to use good reference images with no baked specular because it really helps to improve the final result (Fig.06).

An important part of the texture is the cavity map. Whenever I make models with wrinkles or scales I switch my model to the highest subdivision level in ZBrush and go into the Masking tab in the Tool menu.

Then I select the Mask by Cavity option and after that, under the Texture Map tab, I select the new texture from the mask option. This way I get a new texture with a completely black fill in cavities. Later I put that texture above my color texture in Photoshop and set it to Overlay Blending mode with the opacity set to 15%. Because I was working with high res models I exported the displacement maps in the last subdivision level in ZBrush.

#### Shading

For the skin shader I used the V-Ray SSS2 shader, which is very powerful and means you can get very realistic results in a short period of time. The setup is very simple so I used textures for the overall color and the specular.

The texture for the specular is just solid color with a slightly lighter color on the mouth and under the eyes. For the sub surface color I used a light red-orange color and for the scatter color I used dark red-browns (Fig.07).

For the eyes I used almost the same shader, but I increased the scatter radius. On the sclera I assigned a Blend material, which is a mix of the two materials, one SSS2 and the other Standard material, with the opacity set to 0%.

In the Mask slot is a Gradient Ramp map with Gradient type set to Radial. On the pupil plane I put a solid black material (**Fig.08**).

#### LIGHTING

For the lightning I used a common light setup with four lights: key, fill and two back lights to emphasize contours and create back scatter on the character (Fig.09).

#### RENDER SETUP

The render setup was very simple and the only thing I changed from the default settings is the V-Ray Color mapping type, which was set to Exponential with the Dark and Bright multiplier set to 1.25. Although this was a small change, it drastically improved the final render.



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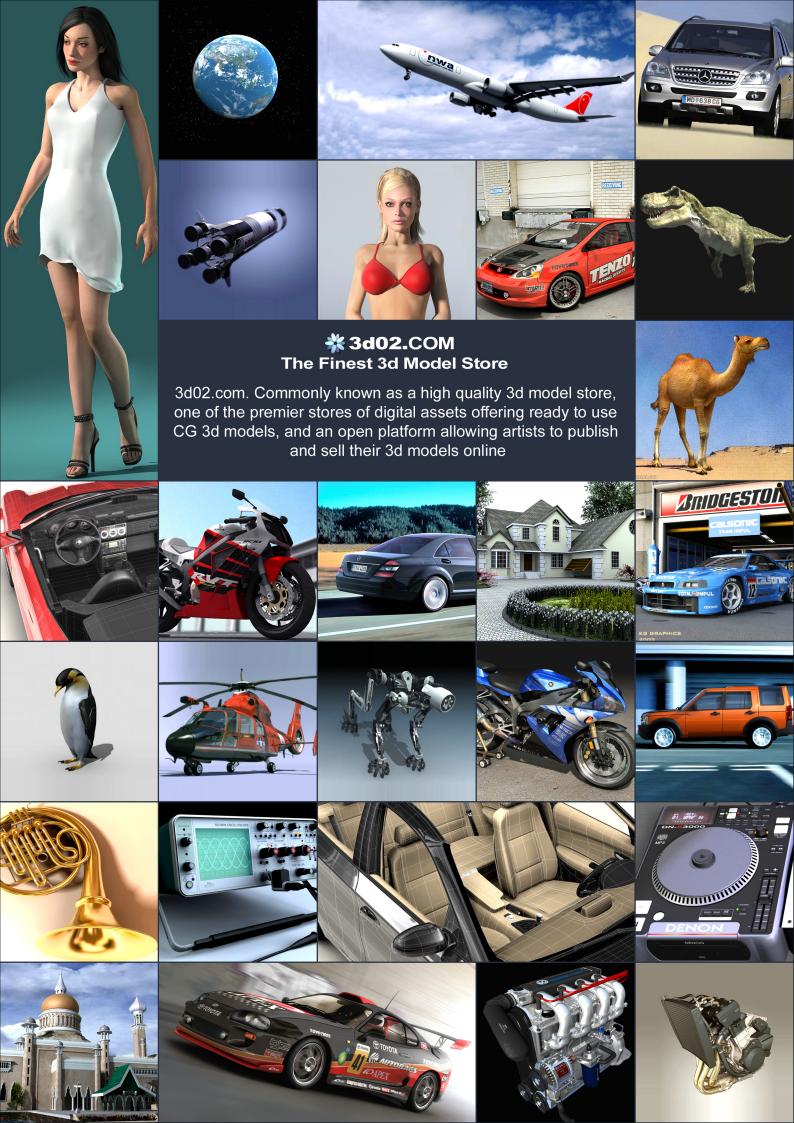


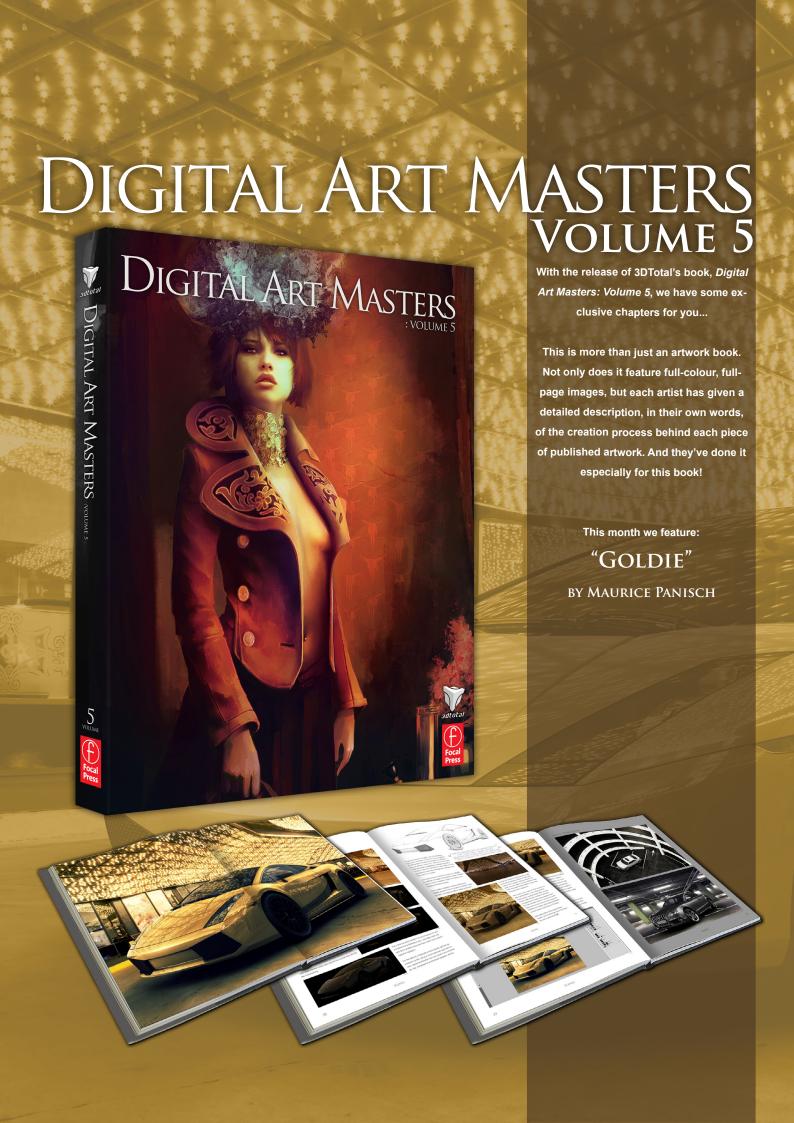












The following shots of the "Goldie" book pages are featured here in full-resolution and can be read by zooming in..



#### GOLDIE BY MAURICE PANISCH JOB TITLE: 3D Artist SOFTWARE USED: Ginema 4D, Photoshop



WARE USED: Cinema 40, Photoshop

INTRODUCTION

The initial idea for this image was inspired by a good friend of mine, which is a proposed to the proposed of the proposed of the proposed of the proposed of cool locations there, as well as a gas-degree HDR images from them.

I saw this location (Fig.01) and thought, "Hey, you've got a Lamborghini model of the Gallardo Superlegagera that would match this background parfectly with a gold paint finish!" Thus, the idea was born that it would shine like gold.

My aim was realism with a touch of surrealism, because the golden location with a golden super car would look somewhat far-fetched and yet still remain believable. It wouldn't be the yipical car rendering you so freen see in galleries, but would stand out from the masses.

WORKFLOW

The model of the car was an old one I'd made a while ago, before starting the Goldie image, but I'd never managed to use it as I had intended. So this was my chance to do something special with it and recycle it from my hard disk.

The shading wasn't that difficult for me because I have been making 3D cars for a long firm now and it is one of a my bigget passion. For metallic are paints I normally render out a pass with the clearcost reflection (Fig. 82) and for the metallic ender cloroposite it with a well balanced Specialry layer (Fig. 93) and a blurred Reflection upon the common of the common of the metallic care paint with short render times and control the overall book during the common of the co







with Blinn shaders because they create more realis

For the lighting I employed a more classic light set up because I prefer using a more traditional approach for cars. Global Illumination isn't as crucial in this instance as, say, compared to architectural subjects. Hence,



the car was it by ten Area lights – some for the diffuse lighting and some extra ones for the specular highlights. For diffuse lights it is necessary to lower the contrast in the detail setting to around 35 – 50% so that they create an ice diffuse light, a longerating the specular highlights, I normally employ Prior lights that are set to Specular only, griding the cars some nice settla highlights and accents to the shape of the chassis.



correction until it matched the backplate and was able to cast nice reflections across the car. In Cinema 40 I applied it to a huge sphere that wrapped around the whole scene and rotated it until it matched the backplat in this way you get the same reflections as if you were taking a photo at the actual scene.

It like to render out my images with a flat bok and a more diffuse lighting (Flig 87) so I can easily play with the Curves during the compositing stage. When you render out you rain may see that the most possible stage is the seen of the color contect them in the same way because there aren't that many mid-forest poly with I allow owk with 16-bill floating point color space to ensure I have enough color information in the image to word it becoming dramaged when the Curves are pushed too far in Photoshop.







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# MODELING FEATURES OF THE HUMAN ANATOMY



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

CHAPTER 2 | NEXT ISSUI

Chapter 3 | June Issue 070

CHAPTER 4 | JULY ISSUE 071

CHAPTER 5 | AUGUST ISSUE 072 Feet

CHAPTER 6 | SEPTEMBER ISSUE 073 Skin





#### MODELING FEATURES OF THE HUMAN ANATOMY: Chapter 1 - Fars

Software used: 3ds Max

The ear is one of the features that modelers least like to model. Clearly the function of ears is really important, but they often cause problems when we model because they contain a lot of detail and distinct shapes that make them easy to get wrong. Their form is somewhat complex and if you don't follow the proper steps to create them you may not get the desired result. One of the problems I have is that I find it difficult to create the right thickness and volume. If I am honest there have been occasions in the past where I have noticed parts that have been modeled badly on the ears when I have been looking at the skin and the shaders.

Before modeling it is important to study references closely. Although there are many different perspectives and angles to consider, the most important view at the beginning is from the side (Fig.01).

I've painted the most important areas of the ear to isolate the contours and allow cleaner work. Organization is a fundamental key for a modeler and any preliminary topological study or sketch is useful when you're modeling (Fig.02).





#### Chapter 1-Ears MODELING FEATURES OF THE HUMAN ANATOMY

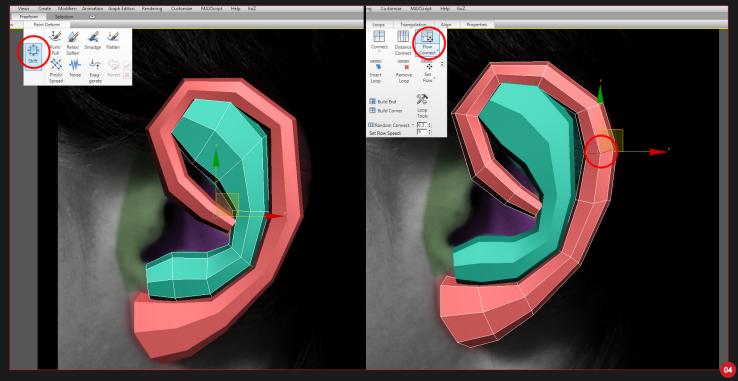


There are many different ways to begin modeling an ear. Depending on the software you use, you can start in a variety of ways. In Maya or XSI it is normal to use nurbs and polygons, whilst Max works best with splines and polygons. As a modeler you should be aware of the different ways to work more effectively, but the purpose of this tutorial is to

model with Max and so I will explain the system that best works for me in this software.

Draw two splines following the isolated areas on the ear blueprint. Activate "Enable In Renderer" and "Enable In Viewport" to see the geometry in the viewport. There are two ways to represent the mesh; the default selection "Radial" will be perfect for our model. Change Sides to 8. At this point we have to limit everything to simple shapes. Add an Edit Poly modifier to each spline because to use the new Freeform tools we need to work in Edit Poly mode (**Fig.03**).

Graphire tools are more flexible and fun when making changes to the shape. Press Shift and



change the shape. It is easiest to do this with a graphics tablet, but if you don't have one don't worry because it is just as easy to manipulate the shape with just the mouse. Always try to follow the reference or blueprint. Continue to use the new Graphire Modeling tools to add further detail where it is needed. The Connect Flow function is perfect for adding fast loops (Fig.04).

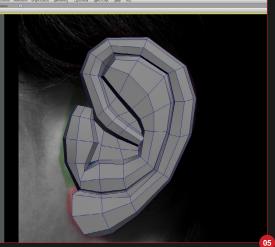
The next step is to add more parts to our model. Remember to do things in this order: Spline > Edit Poly > Freeform tools and then finally attach them. Collapse all the modifiers to convert it to one Edit Poly object. Keep adding more edge loops or using bridges to join the edges. At this point the ear is taking shape (Fig.05).

So far we have only worked in the viewport so our model is completely flat and has no characteristics or volume. Now let's return to Fig.01 and have a look at the image with the different views of the ear in it. From this point you should work in viewport perspective to get a real sense of 3D. We will use a lot of useful tools such as Soft Selection to move big areas



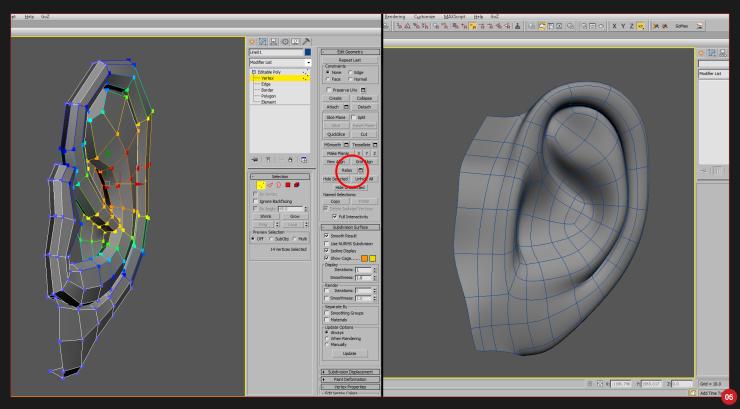
in a fluid fashion. It is important to understand most of the tools that you can use when in Edit Poly mode for an efficient work workflow. Using Relax in Soft Selection mode is a good way to smooth polygons, edges or vertices. This saves time and stops things getting messy.

On this occasion I want to clean the geometry that is unnecessary at this point. In modeling, as in other areas of CG, you should work from general to detail. Making sure you have a clean mesh with regular quads is a fundamental key to helping you progress. Remember to work with general shapes at the beginning (Fig.06).



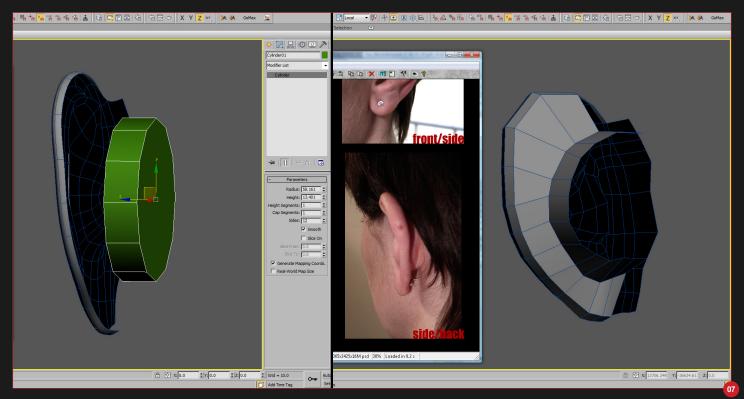
With a simple cylinder you can add the interior. As with the splines, attach the two objects and join the edges with a bridge (**Fig.07**).

After a session of cleaning and detailing geometry we have most of what we want. This is when you should go back to your references to see how your model corresponds to them. Whilst comparing the two images we can see the likeness between them. It often happens that when working in perspective with several references we lose a bit of accuracy. This is not usually a problem when doing the ears as they do not require exact resemblance





#### Chapter 1-Ears MODELING FEATURES OF THE HUMAN ANATOMY

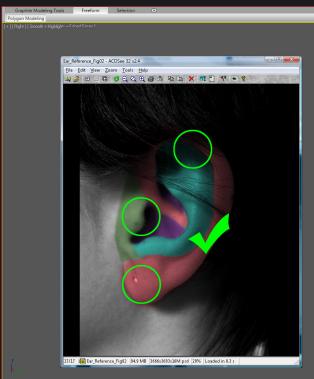


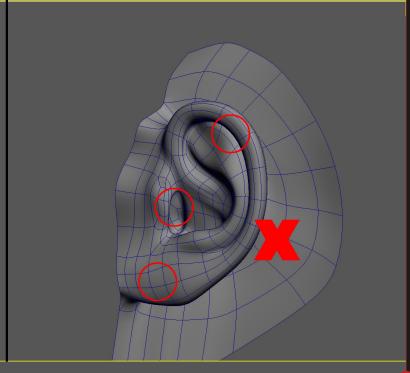
to the reference. But for the purpose of this tutorial let's try to achieve the closest possible resemblance to the reference (**Fig.08**).

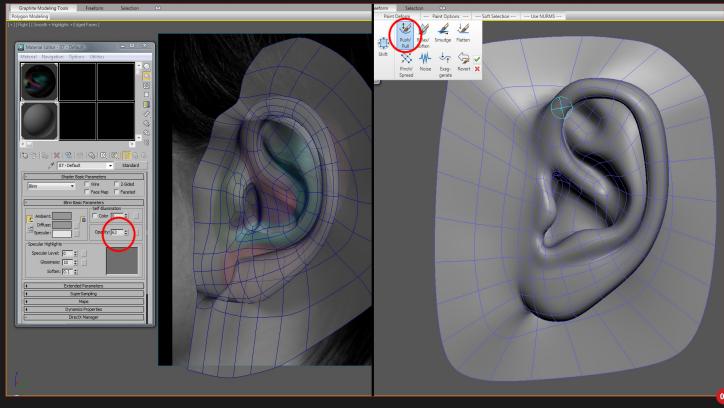
Reducing the opacity of the material means that we can see the wireframe and the reference at the same time. You could also activate "See-through". As we can see there are three main areas that are wrong. There are several different ways you can move large areas. I usually use Soft Selection or Freeform tools and would recommend using Freeform Paint tools in particular. They are basic sculpting tools and although they may be a bit tricky to use if you

don't have a tablet, they can be controlled fairly easily. With the Push/Pull tool I've added more roundness (**Fig.09**).

We are not far from the final result. At this point I still haven't used any special tools; I've just concentrated on working with the tools







described above (Freeform and Soft Selection). I'm pretty happy with the shape so it's time to add the final details. You may add a few small holes or slopes as they are in the reference by using Extrude Vertex, or adding some irregularities with more edge loops which will create a more natural feeling.

You can see that I haven't lost the edge flow from the splines. That's why I model with splines; you can keep a good edge flow from the beginning and you won't waste time trying to do it later. I hope you enjoyed reading this short tutorial as much I enjoyed creating it (**Fig.10**).

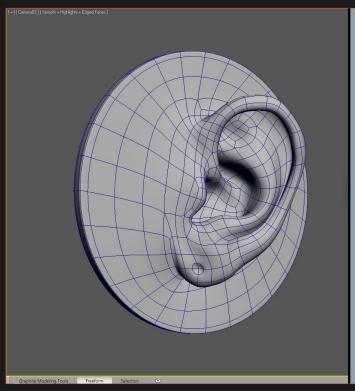
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CHAPTER 4 | JULY ISSUE 071

Chapter 5 | August Issue 072 Feet

Skin

#### MODELING FEATURES OF THE HUMAN ANATOMY: Chapter 1 - Fars

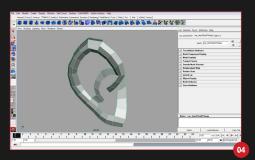
Software used: Maya

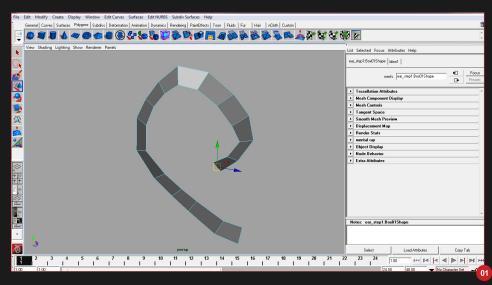
The human ear can be a complicated object to model given its intricate folds and subtleties. Ears can actually give a lot of personality to your characters; tiny ears on a long face can make a person appear goofy, thick cauliflower ears on a hard face can add an extra level of detail to a rough character. In order to pull this off an understanding of the human ear is needed. I will show you the basic steps I take to create a human ear, which can later be translated to most realistic or stylized characters.

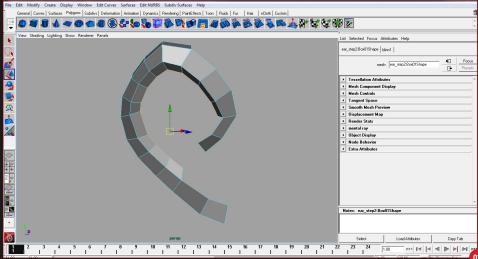
I commonly use the edge extrusion method to build my base models and game assets (Fig.01). This begins by creating a grid with no subdivisions, then grabbing an edge and duplicating it using Shift + Right Click > Extrude Edge and moving this new edge to a desired location. For the ear begin by building the shape of the outer edge, curving it into the center of the ear and to the tip of the lobe.

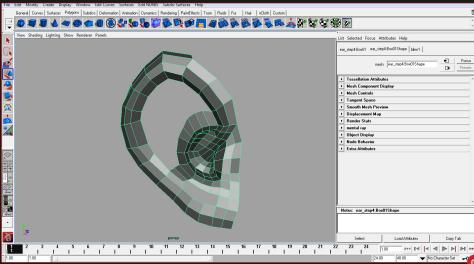
Once that shape is blocked in, select most of the edges on both sides of the newly created strip and duplicate and extrude them inwards to create the anatomical part of the ear known as the helix. Make sure to leave enough open edges to begin building the ear canal and the bulk of the lobe (**Fig.02**).

Select two edges from the tip of the lobe and the end of the helix, press Shift + Right click > Bridge. This will add a few subdivisions that will eventually become the tragus and will, in theory,









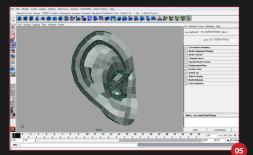
connect the ear to the head. Then create the basic curve using edge extrusion; this will be the foundation for the antihelix (Fig.03).

The next step is to fill in the canal section, creating a rim which will eventually expand into

the antihelix and antihelical. Do this by closing off the antihelix inner rim and extruding the edges inwards. I try to let the helix melt into the canal as much as possible, leaving the hard edge more towards the helix as it comes out of the ear (Fig.04).



# Chapter 1 - Ears | MODELING FEATURES OF THE HUMAN ANATOMY

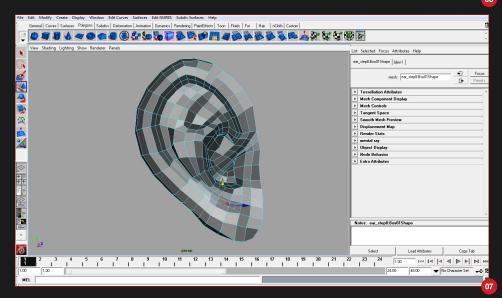


Here is where things start to get busy, at least in terms of mesh density. Fill in the outer ear, trying not to think too much about clean topology. This creates the bulk of the ear, and will create the basic shape of the antihelix (Fig.05).

To create the antihelical fold, select a few of the edges towards the top right of the ear, running down to roughly just above the beginning of the tragus. With these edges selected, connect them with just one edge and cut that edge into the mesh, creating a floating point in the center of a polygon that can later be closed and made into quads. This will create a nice shape for our antihelical fold. Then select the faces in the center of this valley and pull them in, refining the shape as you go along to smoothly follow the antihelix (**Fig.06**).

At this stage the key anatomical parts of the ear have been created so we can start to clean up the topology. When doing this, avoiding triangles isn't necessarily a requirement. It is best to place them where skin will fold and create a crease when smoothed out. For my ear I chose

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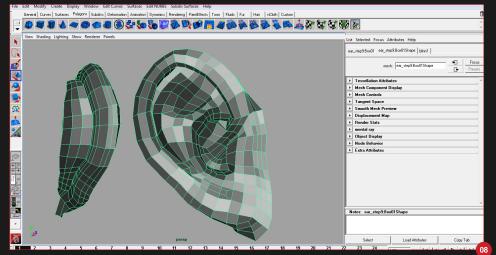


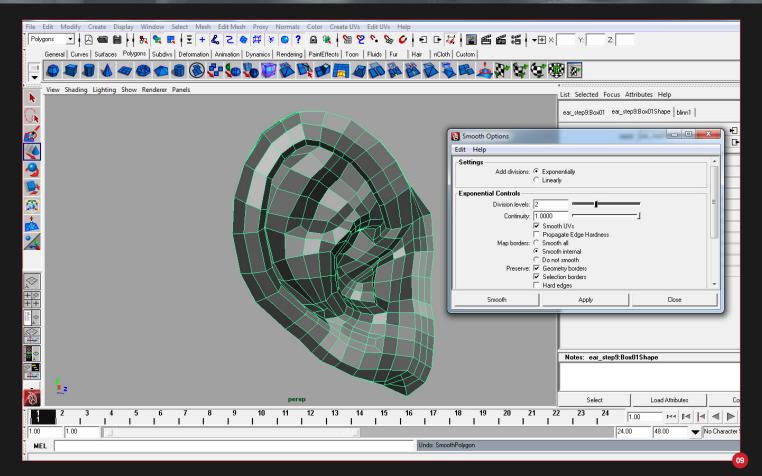
to close off two of the edges running towards the lobe using the same technique noted above, using the Shift + Right Click > Split Polygon tool. Then I created a floating point in the middle of two faces that will later connect to pre-existing

corners which keeps the mesh nice and clean and will mean it will subdivide without pinching when using smooth (Fig.07).

Next begin refining the ear's shape and build out the back of the ear where it would connect to the side of the head. You may notice that the helix of this particular ear model is a touch too fat, so grab the edges of the outer rim and brought them together. Also give the ears more of a point; in previous steps you will notice that they were just a little too round which can give a less realistic, cartoony feeling (**Fig.08**).

I really want to give the look of an attached lobe for this particular ear, so we're going to bridge the edges that would be on the bottom of the lobe to the edges on the side of the





head, extending up to the helix which received the same treatment. This makes the ear look as though it melts into the head. Also at this point you should select the outer edge of the ear, extrude it inwards (towards where the skull would be) and then fold the edges in to create the back of the ear. From here continue the process and create the reverse side of the

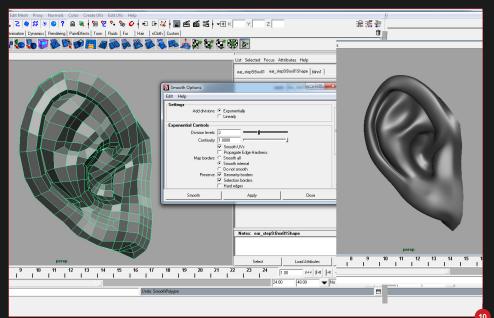
canal, creating a ridge just before the theoretical connection to the head.

From here, I recommend making sure that none of your edges are marked as hard edges to avoid display errors. Select all of the edges of your model while in Edge mode and press Shift

+ Right Click + Soften Harden Edge > Soften

Edge. This will make all of the edges smooth evenly when subdivided and can help avoid errors if exporting into other applications. Hard edges can be useful for retaining crisp edges without adding a ton of geometry, but generally I reserve this for inorganic items (Fig.09).

The last step is fairly straight forward. Select the ear mesh and then navigate to Polygons > Edit Mesh > Smooth (Options) and set the level of Smooth to 2. This subdivides the mesh multiple times, adding more geometry, and gives you a better idea of what the ear will look like when sculpting in ZBrush – or it could even be used as a target for a Normal map (**Fig.10**).



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# MODELING FEATURES OF THE HUMAN ANATOMY



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

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Chapter 5 | August Issue 072

Feet

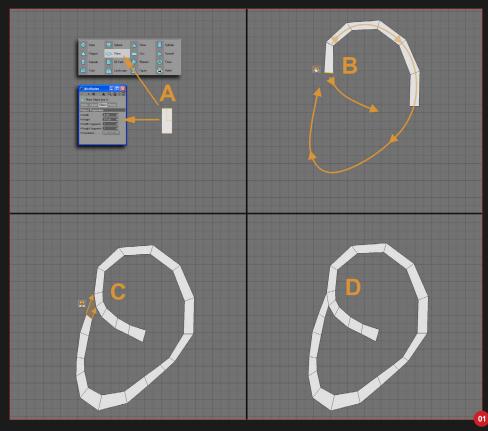
CHAPTER 6 | SEPTEMBER ISSUE 073 Skin

#### MODELING FEATURES OF THE HUMAN ANATOMY: CHAPTER 1 - FARS

Software used: Cinema 4D

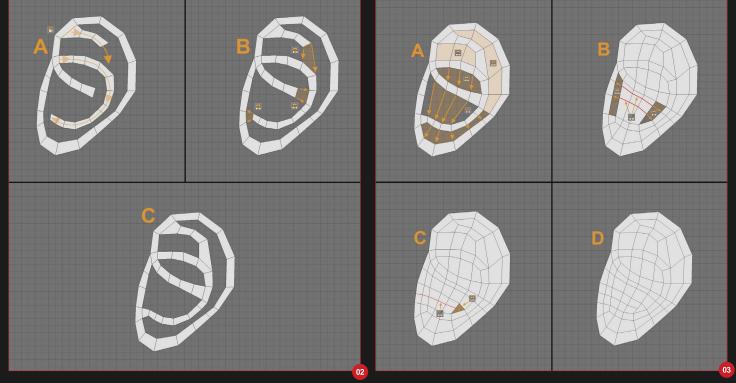
The ear is one of the most complex parts of the face to model. We can make it easier to do though by using the Extrude Edge technique. First create an object plane in the Attributes window. Make the plane to 4 x 10 cm. Set the Width and Height Segments to 1 and the Orientation to Z (Fig.01a). After doing this make the object editable by pressing "C". Use the perspective view to switch between the front and back views. Select the lower and higher edges and extrude them with the Extrude tool. Create new polygons to form the profile of the entire ear (Fig.01b). Use the Bridge tool to close the mesh (Fig.01c). You should end up with something like Fig.01d.

Continue to extrude the edges to create a path for the inside of the ear (Fig.02a). With the Bridge tool, connect the external mesh with the newly created mesh (Fig.02b). By following these steps you should have created the basic shape of the ear (Fig.02c). Remember the



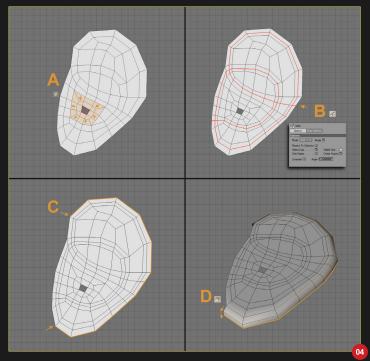
number of edges on the inside must match the number on the outside edge.

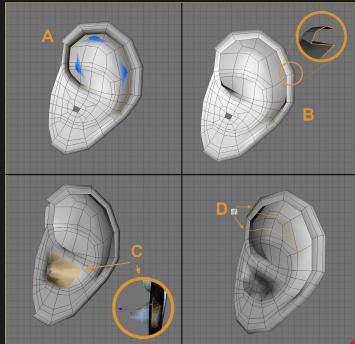
With the Bridge tool connect the edges between the paths to close all the gaps in the inner ear (Fig.03a). It might help to use the Knife tool (K) by adding cuts to simplify the bridges (Fig.03b – 03c). By doing this you will get the entire closed shape of the ear, including all its loops, which will mean you will get the volumes anatomically correct (Fig.03d).





# Chapter 1 - Ears MODELING FEATURES OF THE HUMAN ANATOMY





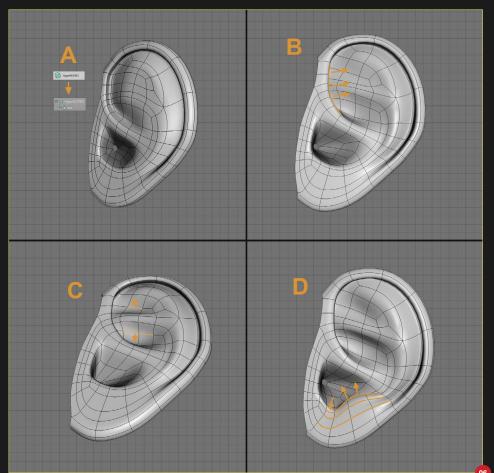
Select the polygons located next to the ear canal. With the Extrude Inner tool (I) create an internal division of the polygons (**Fig.04a**). Move the points in the mesh just created to give it a more circular shape. When you have done this

delete the polygon located in the middle. Next select the Knife tool (K) in Line-in mode and divide the polygons created earlier to create the outline of the ear (Fig.04b). Select the outside edges of the ear, leaving inactive ones located

where the ear meets the face (Fig.04c). Switch to Perspective mode and, with the Extrude tool, give volume to the outside of the ear (Fig.04d).

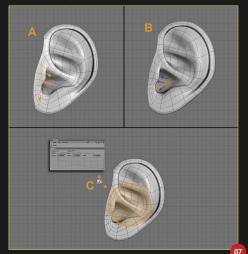
Now you can start creating the shape of the inside of the ear. Push some of the polys along the Z axis, as you can see in Fig.05a. You can see the type of shape you are trying to achieve in Fig.05b. The next step is to select the points on the auditory canal and move them along the Z axis to create the cone shape of the hole in the ear (Fig.05c). Again at this point I suggest using the Knife tool and increasing the amount of polygons at the top of the ear (Fig.05d).

Now create the mesh of the ear using the Hyper Nurbs tool. When you have done this you can continue to make changes whilst viewing the object smooth (Fig.06a). Select the inner edge of the ear, at the point where the ear is opposite the temple, and move it towards the inside of the ear (Fig.06b). Now select the top inner edge that you previously created in Fig.05d and push it along the Z axis, creating the inner zone, which should be a Y shape (Fig.06c). Next select the bottom edge of the inner ear and move them inward to create an S shape (Fig.06d).

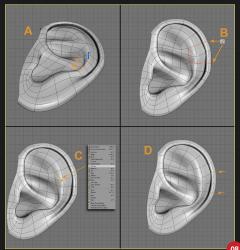


#### MODELING FEATURES OF THE HUMAN ANATOMY Chapter 1- Ears

# **3dcreative**

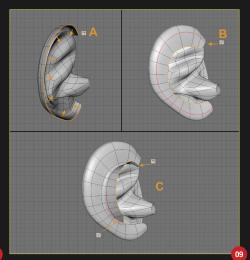


Select the edge that would be nearest to the cheek and push it towards the inside of the ear. Once you are happy with the shape and volume, push the lower edge of the auditory canal down (Fig.07a). Push the section next to the ear canal along the X axis in the direction of the cheek using the Brush tool (Fig.07b). Go to Smooth mode and use the tool with a Radius of 8 cm and 10% Strength, and relax the mesh in the middle part of the ear (Fig.07c).



Select the edges to the center of the ear and push them along the X axis; as you can see in Fig.08a, this should emphasize the Y shape we made earlier.

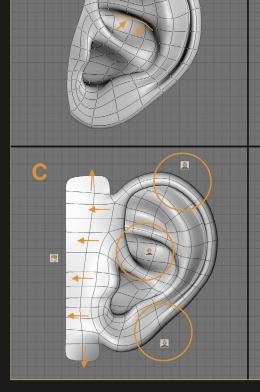
Now is the time to smooth the mesh. Select the Knife tool and on the upper right side of the ear, cut from the edge inward. By doing this you will create polygons in areas which at one point only had six edges (**Fig.08b**). By creating these cuts

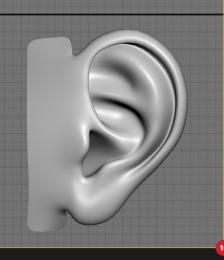


you will notice that you create two polygons and four triangles. Select the edge to the center of the polygons, click the right mouse button and select "Dissolve" (Fig.08c) thus removing the excess edges. Now select the new external points previously created and push out the ear, restoring a smoother curve (Fig.08d).

Next select the outer edge of the ear and extrude it inwards to give volume to the ear (Fig.09a). With the Knife tool, add a row of edge splitting polygons as you can see in Fig.09b, always extruding the outer edge. Then create the area that you are going to attach to the skull. Here you can also add a cut to highlight the two newly created volumes (Fig.09c).

At this stage, emphasize the volumes previously created (Fig.10a). Using the Magnet tool, push the volumes at the top of the ear outwards and those at the center of the ear inwards (Fig.10b). Now go to the front view and, using the Magnet tool, move the upper of the ear to give it a natural and realistic shape (Fig.10c). Finally select the corresponding edge at the base of the face and extrude them. You can use this edge to sew the ears to the face.





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# MODELING FEATURES OF THE HUMAN ANATOMY



Modeling the features of characters is something that has caused problems for many artists over the years. A good model can easily be spoiled by an incorrectly modeled feature, such as a hand or an ear. This eBook offers a step-by-step guide to help you make sure you never struggle with feature modeling again, presenting detailed chapters that have been written specifically for 3ds Max, Maya, Cinema 4D and modo.

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#### MODELING FEATURES OF THE HUMAN ANATOMY: CHAPTER 1 - EARS

Software used: Modo

#### BASIC MODELING

In this first part of this tutorial we will cover some basic techniques that will allow you to easily and efficiently model the human ear. Following step-by-step instructions won't be quite enough on their own to make this happen, but a true understanding of shapes and the relation between them can lead you to a successful model of an ear.

So let's say few words about the anatomy of the ear. The ear is a very complex organ both in its function and shape, but fortunately for artists most of the hearing organ is hidden inside the skull and only the outer part is visible. So we are going to model the outer part of the ear, which we are going to call the auricle.

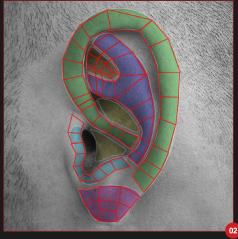
Unfortunately it's impossible to save artists from Latin names because learning these names can be truly helpful when it comes to modeling such complex shapes. Although the auricle is made up of 15 or more different parts, for the sake of simplicity I will cut it down to the most



basic ones that form the primary and secondary shapes. The most expressive and longest part of the ear is the helix, which is the green part of **Fig.01**. As you can see it curves from the earlobe around the auricle and ends almost inside the center of it.

Next to it is the antihelix (blue area). This is cartilage that is Y shaped and ends at the upper helix. The superior and inferior crus is between the antihelix legs and is a triangular shaped cavity called the triangular fossa (orange).

Surrounded by the helix and antihelix is the superior concha (yellow), which is divided from its lower part – the inferior concha – by the end of the helix.



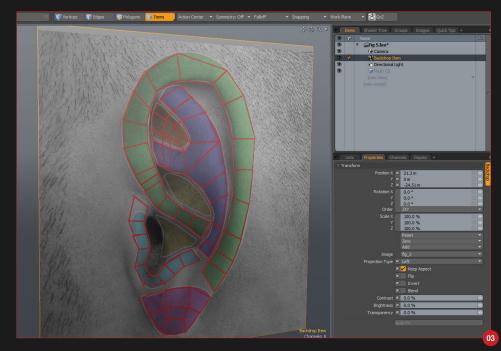
The bottom of this cavity is surrounded by the Tragus and anti-tragus (light blue).

At the bottom of the auricle is the lobe (pink), a soft cushion that hangs almost freely from the antitragus. There are a few parts that cover areas in between, but in order not to overload this tutorial with Latin names I have simplified the auricle into these six major parts. When modeling the ear most of the smaller parts will be generated by bridging edges between major parts.

I guess now it's time to do some modeling but before that we should do some planning. The plan is to make an image plane that we are going to use as a template for laying down polygons using the Pen tool in modo 401. So the next step is to lay down the blueprint for the polygons as you can see in **Fig.02**.

The trick is to make all the colored part of the auricle compatible in terms of edges so they can be connected by bridging edges or by merging vertices. If you are about to follow my instructions step-by-step I strongly suggest you make your own blueprint by imitating Fig.01. That way you will have better understanding of the auricle anatomy.

To set an image plane in modo 401 you have to make a new backdrop item and in the image selection, choose "load image" and load your blueprint. You will also have to set Projection



# Chapter 1 - Ears MODELING FEATURES OF THE HUMAN ANATOMY

Type to Left because we are working with the left ear. If you do this properly you will have your blueprint loaded as in **Fig.03**.

The next thing to select is your backdrop item and offset it on the X axis. That way the blueprint won't stand in your way when you model is in perspective view, but will still be visible in the viewport.

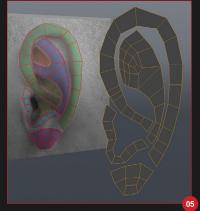
Modo 401 tip: You can drag and drop any image from your explorer directly into the viewport to make a new backdrop item.

Now the backdrop item is ready we need a new item; this time it's a mesh item. Again make a new item and choose "mesh". This layer will contain geometry for one of our six major auricle parts so let's make the first part. Since the backdrop is set to left projection, go to the left corner of the viewport and set the view to "left".

Now let's set the options for the Pen tool. On the left side of the modo interface you will find the modeling tools and under the Basic tab select the Pen tool. In the Pen options menu change the Type option to Polygon and check the Merge and Make Quads options (Fig.04).

Now you are ready to make some geometry, but before you jump into tracing out the polys on your backdrop I suggest you try some free runs with this tool to figure out how it responds.







When you are ready to do some modeling, trace your blueprint with the Pen tool by following the red lines. When you have traced out one of the six major parts press the Space key to drop the tool and re-select the Pen tool to begin the next part. Repeat this process until you have traced all six parts. When you have done this you should have something like **Fig.05**.

The next step is to select the edges that separate the lobe and helix and bridge them by selecting the Bridge tool from the modo Tools menu under the Edge tab. Repeat the same process for the edges that separate the antitragus from the antihelix. You can see the new created geometry in green in **Fig.06**; this bridges the edges highlighted in yellow.

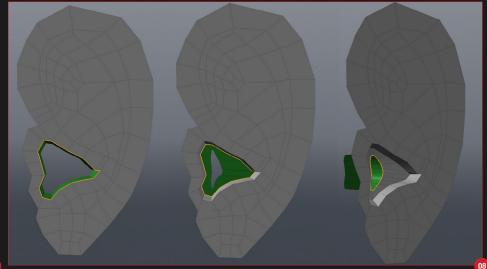
Modo 401 tip: If you hold down Ctrl and press 1 or 2 on the keyboard you will gain access to the viewport pie menu. From there you can quickly customize viewport settings and shading styles.

Now let's fill the gap between the helix and antihelix, and the gap between the tragus and helix using the same technique. Select the edges highlighted in yellow, as in **Fig.07**, and bridge the separated parts. The next thing to do is generated the geometry shown in green in **Fig.07**.

It's time to give the geometry some depth since until now our auricle model was flat on a Z axis. Select the loop inside the hole that's left by double clicking on one of the edges in the loop. Now extend the edges along the X axis. To access the Extend tool go to the Edge tab and press Extend. You can also access the tool by pressing Z on the keyboard. Again I am marking edges with yellow and generating geometry in green.

Another way to reactivate the same tool again is to click on the extended edges while holding Shift; do so and reshape the selected border







with scale handles to make the ear hole shape as illustrated on the second image in **Fig.08**. Extend this once again on the X axis to make the ear hole channel and offset it a bit in the Z axis.

Modo 401 tip: Use Del, 1, 2, 3 etc., on the numerical keyboard to quickly change viewport from perspective to top, font or right view.

The next few steps are going to make this model really pop out so make sure to follow them correctly. First select the group of polygons that form the six auricle parts, as shown in the first image in Fig.09. Now press B on the keyboard to access the Bevel tool, extrude the polygons outward with the blue handle and push the inside by using the red handle.

After that you should have something similar to second image in **Fig.09**. For the next step select three edges at the center of the antihelix, helix and the ridge that separates these two, as shown in the third image of **Fig.09**. Now press Alt + C to access the Loop Slice tool and click on the viewport to activate the tool.

Now it's time to make the edges smooth.

Maybe the best way to do that is to select the Smooth brush from the Sculpting menu and swipe it across the hard edges with a few gentle strokes, but for those who look for a one click solution here is more straightforward tool. Go



to the Deform tab in the modo tools and select Smooth. Set Strength to 1,0 and Iterations to 10 and press Apply. You can also experiment with your own numbers or combine the two techniques mentioned above. Your result should look something like **Fig.10**.

Now you have all necessary geometry for this frontal part of the auricle and it's time to reshape it into something more organic looking. Modo 401 sculpting tools are all you'll ever need for reshaping, proportioning and sculpting tasks. The sculpting process is not something that can be described step-by-step, but I will do my best to point out the most important moves. In order to do that I marked the areas that should be treated with the Smooth brush with blue. inflated areas with green and areas that should be moved with red. If you want to view your geometry in subdivision as I did in Fig.11, press the Tab key. Take a look at the ear from the front perspective and pull out the middle part of the helix and antihelix.

Since the auricle is slightly rotated outwards in relation to the head you should demonstrate this by rotating it on its Y axis by about 20%. Now all that's left to do is build the back of the auricle. Follow the instructions shown in Fig.12 and select the edges highlighted in yellow to extend them. You should generate geometry that looks like the green polygons in Fig.12.

At the end feel free to upgrade this model as you like by adding more supportive edges or reshaping it with the modo 401 sculpting tools. Using the amazing render inside modo I managed to make a decent render in a couple of minutes (Fig.13). I hope that this tutorial will lead you to similar or better results and see you in the next chapter.

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Issue 068 April 2011

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